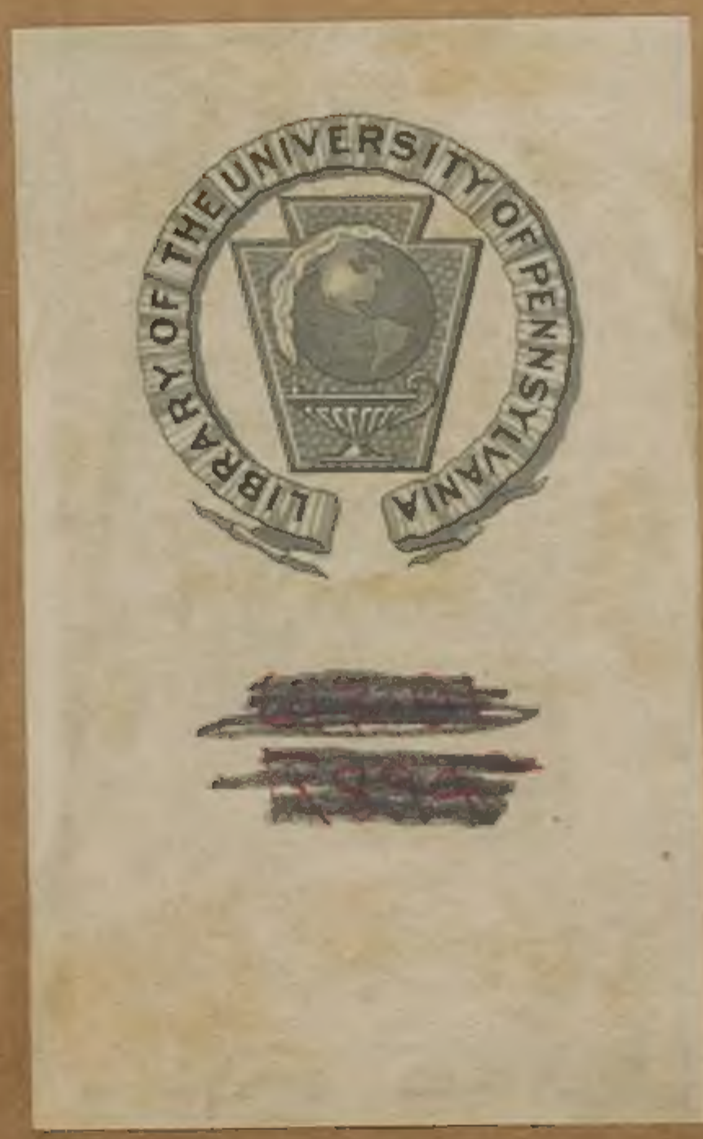

Jacobus Graham medicinæ studio se addixit

duodecimo die mensis Aprilis, Anno Redemptionis

nostræ Millesimo septingentesimo octogesimo Octo.

November 3d 1788.

Philadelphia.

Notes taken from a Course of
Lectures on Chemistry by
Benjamin Rush M. D.
Professor of Chemistry in the
University of Pennsylvania.

Introductory Lecture.

Gentlemen,

I once more have the honour of addressing you previous to a Course of Lectures on Chemistry the history and practice of Medicine. In this Lecture I shall endeavour to shew the Objects, importance & usefulness of Chemistry. The Professors of every Science thought, that the more ancient the Origin of that science could be placed the more dignity is

4 it possessed. Chemistry therefore had its origin placed in
times of the most early Antiquity. Thus Noah whom
we read of in Scripture, was versed in the Art of making
wine, & Tubal Cain who was a worker in Brass were
said to be expert Chemists. But my opinion Chemistry
instead of being the most ancient, is the most modern
of the Sciences. The persons who say otherwise do not
distinguish between the practice of an Art and the principles
of a Science. But being a modern Science in no wise
detracts from its dignity; for as Lord Bacon observes
those sciences which are of most use to mankind have
required the longest time for their formation: thus
Astronomy, Navigation, & Electricity were not reduced
to fixed principles till modern times.

The Earth and ~~whatever~~ every Compound substance
which lies hid in its bowels, or is exposed on its
surface; the waters and whatever are contained in them
the air and all matters dissolved in it, are the objects
of Chemistry. From hence appears what an extensive
Science it is. Now it will be proper to mark the
difference between Natural Philosophy & Chemistry
The first treats of the general properties of Bodies—

as Specific Gravity, Solidity, Elasticity &c whilst the latter only treats of their particular Qualities. Thus will regard to Air: The Natural Philosopher explains its Transparency, elasticity, weight, Bulk &c whilst the Chemist endeavours to determine whether it is a compound or simple Body; if a compound, what are its constituent parts, in what manner those parts are united. Lastly the Effects of heat and mixture upon it.

A Knowledge of Chemistry is of the greatest use to the Physiologist; it is absolutely necessary he should be acquainted with it, for without it, he can get little insight into the nature of the animal fluids. By an acquaintance with it he is enabled to discover, that the important process of digestion in the Stomach is partly at least carried on by a Chemical process: some light is also thrown on secretion by the same means. It must be remembered however, that the Laws, which apply to the action of dead matter upon dead matter, cannot be applied but with considerable restriction, to the action of inanimate on animate Bodies. This was not attended to when Chemistry was first made use of to explain the Functions of the animal machine.

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6 Sure it was frequently applied in a very improper
& absurd injudicious manner; to account for the Phe-
nomena in the animal System; which are produced
by Causes totally inexplicable on Chemical principles.
Principles. But a more intimate Knowledge of the Science
removed the false application of it — The mechanical
Philosophy, when first introduced to account for the
Phenomena, reasoned in the same unlimited injudicious
manner; but for the same causes it is at present applied
with considerable restriction and consequently with
more propriety. We are still in acquisition with many causes
that. If we could render this Cause apparent it would
throw light on many appearances which occur in the
animal Economy which are now entirely concealed from
us. Chemistry, as will hereafter be made to appear,
tends most evidently to the discovery of the Cause of
this Phenomenon. This Science is also applied
with the greatest advantage to Pathology: — Thus by
a Knowledge of it, we may be led in to the proper
method of investigating the causes of diseases, and the
manner in which the Sedentia recentes as they are
called produce their Effects in the human body

How can we reason to conclude that the contagious miasmata exert their malignant influence by exciting a process of Fermentation in the Blood? ——

An intimate knowledge of Chemistry is absolutely necessary for the Physician, for unless he is able to prescribe sufficient Medicines at the same time which might decompose each other, or hinder the Decomposition inert; or, by their action on each other they might produce new compounds possessing virulent activity different from those the separate ingredients; frustrate by the new arrangement of Parts which takes place they may generate substances of very noxious Qualities. He should reason to believe that the mineral Kingdom contains an Antidote to every disease with which the human Body is liable to be afflicted. — Thus we find Tartar emetic to be a certain cure in most Cases of Fever when exhibited in certain stages of their disorders and in proper doses, at the necessary intervals of Time. The general Dictum "that just Sounds of Unlawful endeavours" baffled the attempts of the most eminent Physicians it can it will scarcely ever be discovered to be a certain antidote.

8. It is by Chemistry we are taught to prepare Vegetable and other animal Substances so as to fit them to enter the human Body. It is by the assistance of this Science we are enabled to obtain salutary medicines from Substances the most pernicious — Some persons have imagined that the vegetable Kingdom contained medicines fully capable of removing all diseases, and therefore that there was no necessity for having recourse to the mineral Kingdom. But I would beg leave to ask them Gentlemen did not the same almighty Hand, which so liberally bestowed the Peruvian Bark with its wonderful Qualities, infuse a medicinal virtue into the Substances which are buried in the Bowels of the Earth. It cannot be said that Galenical medicines possess such salutary properties: on the contrary that they are endued with many valuable virtues; but Chemistry is still applicable here, as scarcely any regular can be prepared for use without its aid. —

This Science also explains the Action of Medicines on the human Body to the Physician, as by its means he comes to learn the Qualities of the Climate in which he lives. The Knowledge of these Qualities is absolutely necessary to the Physician as he is engaged in practice, as many Diseases take their Origin from a sudden Change in these Qualities, all diseases are much affected according to the State of the Climate in which they happen. By a Knowledge of Chemistry, Physicians are sometimes enabled to discover the Causes of Diseases which otherwise would have remained concealed from the then Dr. Baker. by being versed in this Science, has justly fully ascertained the Cause of the Devonshire Colic.

~~The Colic in be justly be justly say is~~ The Cyder, which used in that country is impregnated with Lead ~~in that Country~~. This Liquor becomes thus impregnated by running from the Press thro' leaden pipes & during its ~~acidity~~ passage by its acidity dissolving part of this metal. Some Years ago the people of Amsterdam ~~and Hannover~~ were much afflicted for several succeeding Autumns with a species of Colic much resembling that of Devonshire. It was discovered by a Physician that this disease was occasioned by the use of water impregnated with Lead. He conjectured that the water recd this impregnation from the Leaves of the trees, which grow before almost every house, during the Autumn falling on the Roofs of the houses, all which were at that time covered with Lead. These leaves lying there would ferment & thus form a Vinegar which would corrode the Lead, and be after washed down by the succeeding rains, which water was used in diet by the Inhabitants. His conjecture has been fully verified; for since that time the leaden roofs have been removed & Tiles made use of, & the Colic now is very seldom heard of.

Chemistry is of the greatest Service to the Metallurgist. If we could here extend the meaning of metalurgy farther than is commonly done, I would comprehend under every Operation which is performed on any metals by any artist whatever. The Alchemists have turned upon the bowels of the Earth to discover a substance capable of converting the baser

10. Metals into Gold. They failed, however, in all their attempts
man would have attempted it at all, if they had considered the
Gold is valuable only on acc^t. of its scarceness. & therefore if they
succeeded in producing this change, they would have defeated the
purpose for which they underwent such great labour: i.e. their emol-
ument would have been very little indeed. They however, much
improved metallurgy — If the limits of this Lecture would
permit, I might here descant upon the usefulness of Chem-
to the Brewer, the Baker, the Dyer; the Soap Boiler, the
Bleacher, the Varnisher, the painter & the worker in Clay
fr. the maker of paste to the fabricator of the most common
earthen ware — It is also invaluable to the natural Phy-
From knowledge of it our illustrious Countryman Dr. Franklin
has been able to discover that thunder & lightning are not
owing to the presence of nitrous acid in the air, but are entirely
caused by the action of Electricity. From what has been
said it is apparent that a knowledge of Chemistry should
not be confined to the Physician, but that it is invaluable
to many Artists, and that it merits the attention of every Gen
who wishes to complete a liberal Education —
I cannot refrain from congratulating you when I con-
that we are placed in a Country where there is such a wi
field for the exercise of Genius & abounds so plentifully in
substances which are the objects of Chemistry. Thus precious
stones of almost all kinds are found on the Banks of the Ohio. Clay
suitable to the making of Porcelain &, or enamel in the Del^re State
Lead & Copper in Pennsylvania & Iron, Cobalt, Cinnabar & even native
mercury in New Jersey — When we consider this, w^d it be presumption in us
to expect to have our Names enrolled with those of a Cullen or a Black —

Part 1st

In our introductory Lecture we pointed out the Uses of Chymistry. At present we shall proceed to say something of its Origin. This Science was cradled in its Cradle in Egypt and from thence travelled into Greece & Rome. Moses we find mixed Gold with Water, & from hence we conclude he had some Knowledge of Chemistry. In Greece Chemistry made some progress; but as it was entirely confined to Priests it made less advancement than it otherwise would have done. In Rome it first made its appearance as a regular Science at this time the Alchymists made their appearance who aimed at turning the base Metals into Gold; which coming to the Knowledge of the Emperor Diocletian, he published and Edict which put a stop to their attempts, saying, if they succeeded they overturn wealth, they might be enabled to rebel against them. About the 10th Century Chemistry revived in Arabia & Avicenna wrote at this time upon Alchymy. From Arabia Chemistry with the other Sciences travelled westwards & first fixed its seat in Spain & made its next appearance in Germany.

This Country is peculiarly adapted for its improvement as it abounds with Mines. Boerhaave gives a long list of persons who cultivated the science in this Country. And Paracelsus appears to be the first worthy your Notice

12. He seems to be a very singular and extraordinary
Character and distinguished above all Chemists. Bay
him, Galen reigned the Tyrant in the Schools of Physic
Paracelsus first disputed and called in Question his Doctrine
His Opinions tho at first thought bold, finally overturned th
of Galen. Soon after the Death of Paracelsus Chemistry
made its appearance in England, & was particularly cher
by Lord Verulam, who was the first who wrote upon the
Scene in that Country. His works are ingenious and
deservedly valued. Soon after him appeared the celebrated
Mr. Boyle who did more Service to Chemistry, than a
the Authors that lived before him. As he was born in easy
Circumstances it was in his power to improve the Science
very much by employing a great Number of Artists in his la
He was a Man of great Sagacity & Acuteness, and his writing
are in a plain easy Stile. He concealed nothing but Where him
what he received under promise of Secrecy, or what he thought wou
be detrimental to the Community if divulged. In some cases
he was rather too credulous, incapable of deceiving & thus
he imagined no one would deceive him. He exposed the abs
Philosophy of those days. He reasoned calmly, from Facts an
declared that he learned more, from frequenting the Shops of
Artificers, than from all the Books he ever read.

The works of Bacon & Boyle spread a desire of this Knowl
all over Europe. About this time the Royal Society was fo
formed at London. Their Example was followed by Men of Gen

Germany) in other countries. In Germany Stahl, Hoffman
Hunecke & Hoffgraaf were as Chemists — In France
Geoffroy, Lemery, Macquer Rouelle &c. In England Chemistry
made but little progress. It has lately revived there
(M^r Lewis's) great taste for it among some people of the
first rank. His Philosophical commerce of Arts shews
how much the arts may be improved by Chemistry
Dr. Priestly (also M^r M Cumming) have collected facts. So Dr^s
Cullen & Black (of Edinburgh) we are particularly indebted
for their Facts (using arranged. Dr. Black deserves to be
considered as the Father of Chemistry, and first taught it as
a regular Science, we shall Pro this Course consider it in
this Light. M^r Boyle considered it as a Branch of Natural
Philosophy. most later writers considered as an art. The
Compounders of Medicines have been called Chemists, but
improperly, as they are no more Chemists than the Brewer
or the Baker; he is only an artist who puts in practice
what Men of Science have discovered. — Great care
should be taken to distinguish Chemistry from the other
Sciences since we should be cautious in admitting a
definition of it. Dr Stahls definition is too long Besides
he considers it as an Art. Macquer above with terms
as difficult to be understood as the Term Chemistry itself.
Dr Black has fixed upon a definition which is devoid of
these faults Chemistry is that Science that teaches the
Effects

14. Effects of Heat & mixture, to improve our Knowledge in Nature and Arts," The more we attend to this definition the more we shall be pleased with it. Heat & mixture produce all the Changes which natural Bodies undergo. Heat enlivens all nature and it will afford us much instruction to contemplate its Effects. We will just mention here its use in the Operations upon vegetables. By its assistance we obtain infusions, decoctions, resins. from burning them we obtain from their ashes a Salt. which combined with oil forms soap; & this same salt when fused with vitrous Earth gives us glass. By Mixture the Metallurgist is enabled to fuse his ores. By the mixture of Petuntz &c. we form Porcelain. all our beautiful Varnishes are formed by the mixture of resin and Spirit of wine. All the different paints and Colours are formed by mixture. Ether is produced by adding an Acid to Spirit of Wine. There is scarcely a chemical Operation, in which mixture is not a useful and necessary Agent. some object to our defin. that Chemistry is not a Science. & that it tends only to improve our Knowledge in Nature and not in the Arts; for say they, the improvements in the Arts have been made by the Artists themselves, who were ignorant of Chemistry. We grant and the love of money may have led some ignorant Men to make discoveries, but the greatest were made by men eminent in Chemistry, and who were instructed

ignorant only of the name of the Science in which 19

they excell. We shall now treat of the plan we mean to pursue. We shall first treat of the general Effects of heat 2dly of the general Effects of mixture. & 3dly of the vessels made use of in Chemical Operations. This we are to consider as the first part of our Course. In the second part are more properly called the objects of Chemistry these are first divided into Salts 2d Earths 3d Inflammables 4th Metals 5 Waters 6 Airs 7 Animal & Vegitable Substances In speaking of these Bodys we shall first treat of the Effects of heat; secondly those of mixture, thirdly a short acc.t of their natural History. under one or other of these heads we shall comprehend the science of Chemistry—

It is a natural question for young men entering upon this Study to enquire what Books they shall read and I must own myself at a loss to know what Books to recommend to you. Boerhaave's Chemical Works are only useful on acc.t of the Descriptions of the operations; but he is often tedious & sometimes faulty & pompous in his history of the Virtues of his preparations. Boyle's works may be consulted occasionally with advantage. His natural history of Cold, the human Blood, and of Precious Stones are worth your attention. Macquer's Elements of Chemistry is a Book that that should be in all your hands but he is faulty in point of System

System, Theory and So say it I shall have frequently occ[asion]
to mention his name only to point out his Errors.—
Fourcroy's Chemistry is an useful work. Here besides
all the modern Discoveries, you will find some good obs-
ervations on natural History - Kirwan's Mineralogy
may also be consulted. He is the first writer who has
brought Chemistry to the Aid of Natural History
The Connection between these Sciences is very great
It has been justly observed, that, When Natural History
ends, Chemistry begins, and where Chemistry
ends the Physician begins —

Section - 1st

We come now to treat

Of Heat.

We will not pretend to account for the Cause of it
Lord Bacon deduces it from the Motion, friction &c
of Bodies which appears plausible, but it is not true, as
heat is by no means proportioned to motion, and
motion will not explain all the Effects of heat —
Others derive it from the tremulous motion or Vibration
of ~~Bodies~~ an elastic Fluid in the pores of Bodies. Sir
Isaac Newton calls it Ether, from which he also expla[ins]
the Phenomena of Electricity, Magnetism and
Gravitation. There are some things which tend to prove &
others to refute this notion. No theories have been more

men unsuccessful in their Conjectures than these two Phylo.
By ~~Heat~~ we mean the power of exciting Expansion,
Fluidity, Vapour & Ignition in Bodies.

The Laws of the Communication of Heat are th
are the following —

1st The Communication of heat is common to all Bodies
and peculiar to none, always tending to an Equilibrium
this shews the expansive power of heat, which is always
endeavouring to recede from the Center

2d The Communication of Heat requires some time
and different times for different Bodies -

3d Two Bodies of ~~different~~ same Quantity & Quality of Matter
but different in shape, lose or receive heat in proportion
to their Surfaces. The larger the Surfaces are the quicker
are they affected with heat or Cold, thus a small Cube
will grow hot or cold, sooner than a larger, as the former
contains a greater Surface in proportion to the quantity
than the latter thus also a gold leaf will be much
sooner affected with heat or cold, than a Gold Sphere
or Cube containing the same Quantity of Matter. We
shall shew this law to be of application hereafter, when we
come to treat of Thermometers —

4th Two Bodies of the same matter and form, but different in
Quantity heat & cool in proportion to their Diameters

5th Heat passes out of Bodies quicker in proportion where
the Layers are fewest. fewest

6. Heat is communicated to Bodies, quicker or slower in proportion to the Contiguity of parts — thus heat will be communicated from One cube to another quicker than from one Sphere to another, as these latter have but one point of Contact.

7. Surfaces and Bulks being given they receive or conduct heat in proportion to their quality. What this quality is we know not; Mushenbroeck supposes this to be owing to the density of Bodies, but he is mistaken, as this will not always hold good. It is more probable that the property of conducting heat, depends upon some internal Quality of the Body — there are conductors and non-conductors of heat, as well as of Electricity. Metals are good conductors of both. Wood conducts heat slowly. hence the propriety of wooden handles to vessels frequently exposed to the fire. We are not certain which is the best Conductor of heat. water or Air; but it is probable water is, as bodies cool much sooner when immersed in it, than when exposed to the air: If there is any non-conductor of heat it is air, Heat may perhaps only communicated by the heterogeneous particles in the Atmosphere. Here we have another Analogy, between heat & Electricity

Hair, Feathers &c are nonconductors of Electricity
and they transmit heat very slowly hence the propriety of
using warm clothes in the Winter, hence also the utility
in the practice of the Germans in this Country in sleeping
under a light Feather Bed, which saves a great expence
and weight of Bed Cloathes — From these substances
keeping us warm we are apt to think them warm in them-
-selves, but this is not the case as they will keep bodies cool:
Thus, Ice is kept from melting in summer by wrapping it up
in Hay, Straw woolen Cloathes &c; and Ice houses are
generally lined with some rare spongy substances.
Light spongy Bodies confine the Heat or do not conduct it off
hastily. Thus we see the reason why snow contributes
to make a soil fertile; for by confining the heat of the
Earth it renders it moist & friable. Upon this acct it
seems to be a wise provision of Nature in cold countries
to preserve vegetation during the winter season —
In Russia & Siberia upon melting away of the Snow
the ground is frequently found covered with Verdure
Were we not to call this to our assistance it would
appear paradoxical that in Canada vegetation goes
on faster than in Pensylvania. For the Snows
falling in Novemr. before the severe Frosts, preserve

to preserve the Earth from being affected by the severe Frosts; whereas here we have very severe frosts before the Snows fall, which does not happen till January. The frequent rains here contribute to carry the frost into the Earth. The earth here is usually frozen 3½ feet deep. On the side of a mountain that had North west aspect it was found frozen Six in the late cold Winter.
Such a depth of Frost is never known in Canada. For as soon as the Snow is melted away, the Earth is so soft that the Husbandman begins to plough ~~as soon as the~~ immediately, which he cannot do here till the Frost be out of the Ground. This Oeconomy of Nature is very beautiful and deserves our attention. Nature seems as provident of the animals as of the Earth in cold Countries. The former she cloaths with a soft warm Substance or Fur; the latter with a downy blanket of Snow. When we speak of soft hard Bodies being bad conductors of heat, we mean now solid Bodies and not Fluids. The colour of the Bodies has a considerable influence in the communication of heat. It has been supposed by some that the reason why the hair grows white in old age is to defend the heat of the nobler faculties, by preventing the heat from being carried off. We have also another Instance

of the Animals inhabit Countries. Those which
in the warmer Climates are covered with hair & fur
taken in the colder regions lose their hair Fur & clothing
of wool. Those also that are of a darker Colour become
white —

3 That Heat always has a resistable tendency to fly
upwards, this is exemplified by holding the hand
over a fire, and in a clear sunshiny day, you
may see it ascending. This does not take place in
water; as the heat there is equably diffused. Cold
has a contrary tendency as may be seen in Ice, and
other cold bodies sinking bodies below them more than
those above. This must be owing to the colder air being
condensed & descending. Hence also Sailors perceive the change
of temperature as they approach the land; from the air being
cooled by the ice upon the land and falling down upon the
sea. Valetudinarians who make a voyage for Health should
be careful to keep themselves as much as possible from the
sun air: to prevent which death and use every other means
of avoiding cold as they approach the shore. From this we
may see the following Phenomenon. Mercury
that is a piece of Ice be suspended in the sun or made
right it will weigh considerably less in the morning —

one ounce of Ice will thus frequently lose a Drachm and sometimes two in the course of a night. the reason of this is, that, tho the air may be cold the ice is still more. The air therefore in contact with the ice from the 1st law will impart its heat to it, and subside and its place will be supplied by a fresh quantity, which is warmer. This will undergo the same change & the consequence will be a diminution of the weight of the Ice from a part being melted by the heat communicated from the air. This reasoning seems confirmed by observing that if the Ice instead of being suspended is laid upon the ground no such diminution takes place; the colder air cannot subside and leave room for warmer air to supply its p[lace]. From this law you will also understand why heat ap[-] plied to the Bottom of vessels heats them sooner than when applied to the surface. From water transmi[tting] heat equably, it is employed to heat other bodies an[d] is called Balneum mariae or maris. Water never rea[ches] a heat greater than 212° Hence Mr. Lewis recomm[ends] mercury to be substituted in place of water which receiving a greater degree of heat, will act as mo[re] universal solvent. but I cannot think it would

would answer, as it is too dense and heavy, and in large processes from the great Quantity required & from the evaporation which takes place it would be very expensive.
From this transmission of heat large Bodies of water of water preserve nearly the same degree of heat in every State of the Atmosphere From this Circumstance some of our deep Lakes are never frozen in the coldest winters as the warmer water from below arises, and supplies the place of the cold water on the surface which being condensed sinks. Hence land situated near large collections of water, is never so cold in Winter as other land in the same latitude which is more remote. Thus the Cold in Great Brittain which is situated between the 50, & 60, Degree of North Latitude is scarcely ever so great as in Pennsylvania as the former is entirely surrounded with water. A Question naturally arises here, why air is not in all places equally affected. The extreme cold which reigns in the upper regions is truly astonishing and it will afford us some pleasure to account for it.
All heat at least of the Atmosphere is derived from the sun Opaque bodies only are heated by its rays. and transparent bodies are not affected at all Thus a burning Glass is not affected by the rays of the sun it transmits If the rays are

They are brought to a Focus in the middle of a Bucket of water
the water will not be at all heated, but if a piece of wood be ap[plied]
in that place it will be burnt to a coal internally, for the wa[ter]
will prevent it from burning externally. The rays of the
Sun then only warm the surface of the Earth, and the air
receives its heat entirely from the earth by reflection, hence
the air nearest the earth is warmest. But as air when heated
is rarefied, why does it not ascend, and warm that above
this is owing to it being compressed by the Atmosphere above
which is supposed to extend fifty miles hence the air near
the surface is densest & when most rarefied is still denser
than that above, and therefore cannot ascend far —

The Difference in climate independent of the
Latitude depends upon —

1st the Sun's greater or less perpendicularity to the Earth —

2d The vicinity of the Lakes or large Bodies of water, which
send forth heat in Winter & cold in Summer. Hence Islands
are warmer in Winter and cooler in Summer than conti[nents]
in the same Latitude. This greater warmth over large colle-
-ctions of water, preserves them from the late frosts of the Spring
which has been destroyed in parts further remote. Thus
Orchards near or within a Mile of the Delaware or within
a mile of it are seldom known to fail. In the Spring 179

the Fruit was generally destroyed in this & the neighbour-
ing States except when growing near some water. on the
Shores of the Delaware in most places it was unhurt,
but this preservation was more remarkable on the Jersey
than on the Pennsylvania Side. which was owing to the
warmth being carried in greater quantity that way
by the N. W. wind which generally prevailed —

3dly the difference of the Quality of the Soil upon which the
Rays fall. Thus a stony rocky soil is cooler than a sandy
one.

4thly The contiguity of mountains which screen from the
winds in winter, & cool the Air in Summer, from the Snow & cold on their Summits

5. The Winds blowing from different Quarters of the Globe
Thus the N. W. wind in this Country blowing over the frozen lakes
and immense tract of Continent covered with perpetual
Snows is exceedingly cold. —

6thly The presence of Clouds obstructing the rays of the Sun
Here is another reason why Islands *caeteris paribus*
are cooler in Summer than Continents, from the flying
Clouds arising from the evaporation of the adjoining
Ocean continually hovering over them —

7thly The Situation and state of culture in the adjacent
Countries The Climate of Italy has been much changed
since the Time of Augustus Horace in the 9. Ode of his 1st
Book speaks of the horrors of winter as if he himself felt them.

26. Thurs. Juvenal mentions a Custom which prevailed
among the Roman Youth of breaking holes into the
and afterwards plunging into the Tiber. Travellers t[ell]
us, at present it is considered as an extraordinary circumst[ance]
to see snow on the Ground after 10 O'clock in the morning
and the Tiber has not been frozen these many Years
What can this Change be owing to? It cannot be attributed
to the increase of Cultivation in Italy itself. The Soil of Italy is
much the same as it was two thousand Years ago. and many
many spots which were known the time of Augustus to
be fruitful Gardens are now covered over with woods, and
others remain now in the same situation as formerly
It appears then to depend upon the Cultivation of the Coun[tries]
to the northward of Italy and particularly of Germany
which in the time of Augustus was entirely uncultivated
This Effect cultivation produces by absorbing the moist[ure]
of the Earth & thus preventing Evaporation which pro[duces]
cold, The diminution of water bears an exact propo[rtion]
to the degree of Cultivation. Thus in Pennsylvania the
creeks and millponds have been much lessened
since cultivation has been encreased, & some Mills which
formerly went the whole Year now will go but six Mon[ths]
and others formerly valuable Estates have from this
Diminution been turned into Barrens.

It is probable that a change of Climate similar to that which Italy has undergone will take place in the united States. Any sensible change has already happened posterity will scarcely believe that a road was formed upon the Ice of the River Delaware from one State to the other and for many weeks by carriages; that one an ox was roasted on the frozen River to which thousands of Spectators did assemble, each of his slice.

We now proceed to speak more particularly of

The Effects of Heat —

The distinct Heat of Heat only a sensible Quality and that Heat only of the Effects on sensible Bodies Animal Vegetable substances being consumed or decomposed by heat; and on this account not properly comprehended when we are treating of the general Effects of Heat.

Heat always produces one of the four following Effects;
Expansion, Fluidity; Vapor; Ignition. —

1 Of Expansion

All Bodies are expansible by Heat except one which shall be mentioned hereafter, wherein mention two or three Facts which prove this

All matter may be considered under one of three heads 1st Solids, 2d Inelastic incompressible Fluids

3 Elastic and compressible Fluids -

Experiments prove the expansibility of each of these - That Solids are expanded by heat is shewn by an iron cylinder w[hich] when cold will pass through a bore or ring, that will not ad[mit] it when hot. This may also be observed in bolting doors wh[ich] will be difficult when the weather is hot, but after a few fros[ty] Nights the bolt will pass in with ease. The Variation of Clocks or Watches depends upon the Metals of which they are composed being expanded or contracted by heat or cold. That unelastic incompressible fluids are expanded by h[eat] or cold is shewn by pouring Spirit of wine into a immersed in warm water. The spirit will rise some[what] and take up more space than when cold, it will return to its former space by removing it to a cooler temperature. That elastic compressible fluids are capable of expansion by heat is known, by observing that, if a bladder with a small quantity of air in it is placed by a fire, and suffered to continue there for some time, the air will be so expanded so as entirely to fill it, and sometimes a[lso] to burst it. Expansion and Contraction are always the consequences of heat and Cold. If iron be immersed into sn[ow] it is rendered much less, and if heated in a furnace it becomes much larger than before. Different bodies are different[ly]

expansion by heat, what this depends on we
know not. In general we find the densest bodies, coteris
paribus, expand least. This, however, is not always the case
for some metals expand more than Glass. An Instrument
has been made for discovering the degrees of heat, ex
pansibility in different Bodies, called a Pyrometer.
By this a French Academician has constructed a Table
of the different degrees of expansibility in different Bodies
This may be useful to artist in making nice machines.
Some artists have availed themselves of this experiment
Thus in making long brass Tubes, casks &c. the
Smith heats the iron hoops red hot before they are applied
being in that condition puts them on the vessels. By this
they possibly more closely condense the vessels more forcibly
than from any mechanical force that can be applied.
The same thing is practised in making the Mill Stones
which are commonly called the French Burr. They are made
of a number of small stones cemented together with Plaister
of Paris. The heat contracting on grown cold, renders
the Burr more compact than this could be otherwise
made. Water is almost the only Body in Nature which
is an exception to our general rule and resists the contracting
power of cold. This Fluid when increased from diminished
in Bulk when converted into ice In order to be assured

of the Truth of this Fact. Mr Boyle put some water into a
30. tube three inches in Diameter and on it a weight of 170 p.
on then exposed it to an intense cold the water was no sooner
frozen, then it was so enlarged that the weight placed on it
was raised considerably. In like manner Mr Huygens burst
a Cannon by filling it with water and then exposing it to a degree
of cold below the freezing point, producing this mighty Effect by
the expansive power of Cold on Water. Muschenbroeck
computes the resistance overcome to be equal to 27720 lb
and says the water increases $\frac{1}{10}$ in Bulk. The Florentine
academicians put some water into a sphere of Brass an
Inch in Diameter, and exposed to a freezing mixture
at first the Sphere was so strong that the cold had no effect
on it, but upon turning part of it off, it was burst with thin
by the extensive power of the ice. From hence we learn
why gentle rains succeeded by Frost, so greatly fertilize the
Earth; for the moisture insinuating itself into the earth
& being then frozen by its expansive power, crumbles the
earth into small pieces; thus mellows the ground and makes
it to be more easily penetrated by the roots of plants and
the external air, the last of which not a little promotes
vegetation. Hence also we learn why pavements break
soon after a sudden thaw; & why unoccupied houses moulder
away gradually after a long and cold winter —

and why Conduit pipes are so frequently burst after a cold winter. This is from their running too near the surface of the earth, so that the frost has crept to them & freeze the water in them. Philosophers have been puzzled to account for this increase of bulk. Homberg thinks this Expansion in ice to be owing to the air contained in it which he says may be seen in the form of Bubbles in the most solid lump of Ice. But I would object to this 1st that it is the uniform effect of cold to condense air and not to expand it. But waving this consideration, 2dly Mairan & Muschenbroeck after depriving water of its air, upon exposing it to cold found that it was still frozen and expanded as before, and with the same appearance of Bubbles. 3dly Dr Hales has put the matter out of dispute; for, having put a piece of ice under water he pierced little holes into these Bubbles and found that no air rushed out quickly or with any force, which would have certainly been the case had there been any present, especially if in that State in which Homberg supposed it to be. Mr Mairan proposed an opinion of his own, and attributed it to the strong tendency which the particles of water have upon their conversion into ice to cut each other at angles of 60°. this seems to be the case 1st from the appearance of ice when rough being angular 2dly from the resemblance to snow, which is

32. is vapor frozen in the air. This form of snow has by some been attributed to saline spiculæ. But this cannot the case as snow water has been found by Mr. Margraaf of Berlin to contain no salt but to be quite pure. as this is the case, it affords a strong presumption in favour of Truth of that Hypothesis of Mr. Mairan. Water is not the only body that resists the contracting power of Cold. Mr. Reaum has found another Exception. He has found that several Meta particularly iron, expand upon passing from a fluid to a soli- ~~State~~ form. This has been attributed by artists to a cavity pr in the iron which cannot be the cause, as this cavity is fo in other Metals, which are not expanded by cold. This increas bulk in iron appears to be owing to the particles touchin at angles and not uniting intimately. Hence cast iron not so compact & durable as wrought iron. Heat expan inelastic bodies with a strong force. The Florentine experim does not absolutely prove that water is not incompress The compressibility of water has been proved by a late write in the Philosophical Transactions, Mr. Canton. Upon taking off the pressure of the Atmosphere he found the water expand sensibly and rise in the Tube. Hence we may conclude that water in its natural State is more or less in a state of compression by the superincumbent

(Atmosphere) The great expansion of this fluid by heat is rendered evident by the simple experiment of a Blacksmith on an Anvil and giving a moment strok with the red hot iron. Bodies that are increased by heat & diminished by cold suffer no alteration in weight. Muschenbroeck says that when mettals are melted they lose a few grains of their weight, which they recover when cold. But this small difference in weight appears to be owing to the air above the melted metal being rarefied. Musch.k also tells us that metals when calcined are heavier than when in a solid form. Thus 100 lb of lead after calcination will weigh 110. This as will be shewn hereafter is owing to the absorption of pure or dephlogisticated air. No Bodies contain a definite or certain Quantity of heat, nor do we know how far they may be expanded or contracted. Some Philosophers assert that could the Air by any means be robbed of its heat, it would become as heavy and solid as Gold.

Expansion leads us to speak

of Thermometers

Thermometers are very useful in experimental Philosophy & medicine. We shall chiefly observe the following in their

34. Structure and use. The bodies best adapted for the constr-
uction of Thermometers are those that are most sensible of
heat. Therefore fluids are chosen. but they have a disad[vantage]
as they cannot bear a great degree of heat without boil[ing]
or evaporating. This is however in a great measure done [away]
by Sir Isaac Newton's calculation of which we shall [speak]
hereafter. The Fluids employed in making Thermome[ters]
are Air; Alchol, Oil. & Mercury ———

Air is very sensible to heat & cold and was first used in mak[ing]
Thermo.rs Sanctorius's attempt was rude and imperfect
Mr Boyle improved upon him and carried it to some
degree of perfection. From its great Sensibility to heat and
cold air answers very well in many cases, but its expan-
sibility is so great, that it requires a very long scale which
is unhandy. It is also considerably affected by the circum-
ambient atmosphere with respect to moisture or the
contrary, & is therefore rendered unfit for general use, The Air
Thermometer is only fit for transitory experiments
perhaps it may answer better than any other. Alcohol
coloured with Cochineal has also been used. This is good on
acco.t It is very sensible of heat. expands readily and can't
be frozen, but it is inconvenient on one acco.t that it does
not shew great degrees of heat as its boiling point is but
that of water, It has one advantage that it will not be tinging ...

Vegetable expressed oils have been used for making Thermometers they bear a great degree of heat without boiling or freezing. But at a certain degree of cold they become useless by growing very viscid. They also always soil the tube so as to render it opaque. Mercury is generally used and is possessed of more advantages than any other. It will not boil untill a great degree of heat is applied. Its expansion is not so great as to require a long scale; but it is sufficiently great to distinguish very small variations in the temperature of the air. From these qualities it is best calculated for accurately distinguishing the changes in the temperature of the atmosphere.

We shall now make some observations on the construction of Thermometers —

Mr Wilson of Glasgow is the most perfect artist in Europe in the construction of Thermometers. From him we learn that the accuracy of Thermometers depends on the following particulars. The stem should be very straight. In proportion to the size of the bulb with respect to the stem will the mercury rise. The larger the bulb is in proportion to the stem the greater will be the scale & the expansion the more evident, but its sensibility to small degrees of heat less as appears from the third law of the communication of heat. The glass of the bulb should be as thin as possible. The bulb should not be quite sperical

36. but rather in the form of an oblate spheroid in ord
to increase the surface which renders it more sensible as
appears also from the third law. Its perfection depends
upon the uniformity of the cylindrical tube. It is usual
considered as a necessary step intirely to extract the air
but Mr Wilson finds that the air does not counteract
the expansion of the mercury & that it is therefore unne-
ry to extract it.
The bulb of the thermometer should not be too bright, b
by reflecting the heat the mercury would not rise so
as it otherwise would do. This was observed by D
Patt Wilson son of the former Mr Wilson. He one day fou
a thermometer of his own hanging in his room, the
bulb of which was very bright, to stand lower than t
thermometer in the College. He suspected this to be
owing to the brightness of the bulb, & accordingly on da
-ing it with ink he found that it rose equally w. t
As to the graduation of thermometers, the scale is to be
applied after the tube is filled. Certain standard points are f
upon which are generally the boiling and freezing p
of water. We are much indebted to Dr Martin for his
experiments on this subject. He found that the point
at which the mercury stood when water was freezing
boiling were constantly the same. The intermediate spa

between these two points is divided into equal portions called degrees. Fahrenheit's thermometer, which is an improvement upon Newton, is at this day generally used in England, Holland & this Country. In different countries different thermometers are used, as that of Reaumur in France &c.

In graduating a thermometer we should take the boiling point of water in a mean state of the atmosphere; i.e. when the mercury rises 29½ inches in the barometer, as when the weight of the atmosphere is less water will boil with a less degree of heat than 212°. & vice versa.

By thermometers our ideas of heat are much enlarged. From hence we learn that no bodies in nature are absolutely cold but that they contain some heat, and may be made colder. Hence paradoxical it may seem how may bodies be rendered colder by the addition of salt —

'Tis a positive & not a negative principle. We are apt to imagine that fluidity is the natural state of water, but this is a vulgar error. There are many substances besides water which are fluid when hot, but become solid when cold. 'Tis probable that Lead & Iron would be constantly in a fluid state in the Solar System. Our language tends to keep up the vulgar error, cold being a positive principle

are indeed both heat and cold tend to excite positive ideas. To consider heat as a positive principle and cold as a negative seems to be the best way as we know not where one terminates or the other begins. We are apt to consider below the temperature at which water freezes as cold & above it hot; but water in the same temperature will excite the sensation of heat or cold according to the state of the body. Thus you see that I consider heat as an absolute quality & derived from the sun: and cold as a negative quality if I may be allowed ye expression and depending entirely on the absence of the sun's h[eat].
I shall not here take notice of the opinion of Musschenbroek and others that cold is produced by a frigorific principle, but shall shew hereafter that it depends only upon the absence of heat —

There is one observation which should have been made above with regard to the placing of thermometers. They are generally placed in the shade & against walls. They are considerably affected by the materials of which the walls are made transmitting heat faster or slower. The best method therefore would be to suspend them in the air from the Ceiling —

We shall now further consider the history of cold. The Philosophers who were sent by the King of France to measure a degree of the earth at the polar circle suffered exceedingly from the cold. They were deprived of the sun for several months and were obliged to keep themselves constantly in a close room. Upon opening their door the moisture exhaled from their lungs as soon as it left their mouth was frozen and fell at their feet in form of snow. On inspiration they felt a disagreeable sensation of cold in the breast. Spirit of wine froze here. The mercury fell to 33°. below 0 i, e, 65. below the freezing point. In Siberia the natural cold is still greater. This may be owing to its great distance from the sea. Professor Gmelin tells us that the mercury fell to 155°. below 0. Notwithstanding this great degree of cold. the finest and rarest plants flourish here. Dr Murray informs us that the Potatoe originaly from mexico, flourishes in Siberia. This will tend to enlarge our ideas of vegetation & may be of service when we come to treat of vegetable substances.

Dr. Boerhaave was struck with surprize at a degree of cold 32°. below 0. a more intense cold than this is produced by mixing snow and aqua fortis together. The mercury in the thermometer when placed in this fell 72°. below

40° below the freezing point i, e. 40° below 0. in Fahrenh
Dr Lichtenberg a more intense cold even than this w
produced according to Mr Braun's experiments. The ta
es that the mercury on immersing the thermometer
mixture of snow & aqua fortis fell 35 2° below 0. on breaki
the tube the mercury was found converted into a solid for
The natural temperature of the atmosphere was at the
time 40° below 0. The spirit of wine thermometer at that
time stood at 180° at this point the tube generally brok
& the mercury subsequent hundred degrees. These experim
do not seem by any means to be conclusive. 1° The ba
generally broke and part of the mercury escaped. 2°. I
it was froze or was converted into a solid form & contra
suddenly & unexpectedly with a concave appearance on
surface similar to that of other metals have when
they pass from a fluid to a solid form. 3 The mercury
fell far below the degree at which the spirit of wine ther
-mometer stood which was 180° below 0. at this point it
contracted immediately and froze suddenly. It is prob
that 18° below was the greatest degree of cold pr
ed in these experiments —

The mercurial point answers to the degrees of Real Scale

cold. 2 They teaches the distribution of heat from one
body to another. Thus, take a number of metals; let some
be hot and thus cold: place them all together. In a little
time as[illegible] a thermometer and you will find it shews
the same degree of heat in all which we distinguish by
the name of an equilibrium of heat. Do all bodies
contain an equal degree of heat? Dr Boerhaave & Mr Muschen
brock are of opinion that they did: that a cubic inch of
all substances, such as metals, water, sea salt, air &c —
contained an equal quantity; but a little reflection will
convince us that this opinion is ill founded: for a piece
contains more heat than an equal quantity of wood
would if exposed to the same degree of heat. This equilibrium
of heat is not to be known by any fixed principles, but is
to be found only by experiment. A thermometer
is to teach us the degrees of heat about the mark of Fahrenheit
ears themselves. In order to do this. to find the heat of any
body nor for instance, we throw a piece of iron into a certain
quantity of water; from this we may easily find the heat
contained in the iron. For, by observing the temperature of
the water before the immersion of the iron, & then finding
how much heat the water has gained, we may till pretty

42. justly exactly how much heat the iron contains
So to do this just consider frequently of water contained
the iron. Then find the quantity of water e.g. if the iron
contain a cubic inch, find how many cubic inches
the water contains, & afterwards multiply the quantity
of heat which you find the water has gained, by the
number of cubic inches it was found to contain, & thus
give the heat of the iron. Black confirms the truth of this
method is that it corresponds with the method used by Sir Isaac
Newton for discovering the same thing. The Thermometer
after the heated substance become somewhat cold,
applies the bulb of a thermometer in a cavity which
formed in it, & afterwards notes the degrees of heat it loses
a given time. From this he calculated backwards, & thus
found the degree of heat in the body when first taken
the fire. A use of thermometers is to find the time
which bodies take to heat & cool, & in what proportion
they lose & receive heat. To this accurately it is necessary
that the heating & cooling causes should be the same
Hence the body should be exposed to a current of air
for when this is not the case the heated air is accumu-
lated about the body, & hence it will not cool so fast

as it otherwise would. We may now explain the reason why stile air appears hotter than air in motion. When the air is in a state of rest it receives heat from our bodies, & accumulates it around them; but when it is in motion, it carries the warm atmosphere from around us, & hence windy weather seems the coldest. Bodies not colder; as you may be convinced by letting a pair of bellows blow against a thermometer, when the mercury in the tube will not sink in the least, on the contrary it will rise, for the heat generated by the friction of the wind against the tube, is sufficient to cause this ascension. We may also in the same manner explain why ice when blown upon, is melted sooner than in stile air viz by the cool air around it which would otherwise remain there, being carried off & its place constantly supplied by warmer air -

We come next to speak of the second general effect of heat viz. —

2. Of Fluidity -

Fluidity in all bodies is in consequence of the action of heat. Many reasons concur to establish this

attraction

Attraction. We find Mankind, bodies naturally to become fluid by being expand to heat; for the contrary effect that are naturally fluid become solid by cold. Spirit of wine & other do indeed remain fluid in any degree of cold which has been as yet produced, but if these could but they might be rendered solid, could we not then by sufficient quantity of heat. Mercury which most easily should be remain constantly fluid, has lately rendered solid by cold. Then are some substances in nature, as certain earths and stones which have been made fluid by heat; tho' this is no argument their being absolutely insolible; for then may be degrees of heat we are yet acquainted with. Then experiments that have been made with burning Lenses, they probable, that a Lens might be so constructed as to melt the hardest bodies in nature, especially if certain substances were added to fluxt them. For a late account informed that the Bavarian Academicians have found a diamond by a particular burning Glass. The opinion of fluidity being always the effect of heat is denied by Muschenbroek who asserts that water is naturally essentially fluid. Water freezing is owing to certain extreme

extraneous matter existing in the air which he called frigorific particles, & introduced into the water. He produces thirteen propositions in support of his opinion. I shall take notice of & refute them separately ——

1 That water remaining at rest, or when kept very quiet tho the temperature of the air is below the freezing point does not congeal till agitated; it then immediately freezes. He thinks by agitating or shaking the water that some foreign body is introduced & more intimately mixed with the water. This may be owing to the water being something warmer than the surrounding medium; from parting with its heat slowly. The agitation may occasion some evaporation & disengage the small quantity of superabundant heat. —

2. That frost will continue sometimes at 36° & even 38° of Fahrenheit's thermometer. This we cannot deny as it has been observed by Wolfius in Germany & Reaumur in France. This may have been owing to the long time Ice & snow require for receiving heat or melting; and it is probable the thermometer would have stood at 32° near the surface of the earth, & that the air above was somewhat warmed by the sun. The difference in the nature of the soils

8

46 soils on which they lie will also have a consider[able] effect. Thus when lying on a sandy soil, snow soon me[lts] but when on a cold clayey soil will continue frozen, [for] days.

3. He observed he saw a thaw when the mercury stood a[t] 30° or two degrees below the freezing point. This was don[e] dry. It might be owing to a considerable frost preceding & in freezing, water parts with its heat as we shall see here[after]. It might likewise be owing to the thermometer being h[ung] against a wall, & that being a long time in communica[ting] or receiving heat, which is generally the case; [or] the snow or ice might lie on a warm (sandy) soil.

4. That there is frequently a hoarfrost on vegetables, stra[w] & ca. light bodies when no ice can be procured on to[?]. This is to be accounted for from the 7th. law of the comm[u]nication of heat viz. That the surfaces & bulks of bodies being given they lose or receive heat in proportion to quality of their matter. This frost is observed on rare[?] bodies only —

5 He often observed frost in April may & June, after very warm days, & boldly pronounces that this could not be [due] to water being robbed of its heat. This may be accounted [for] from evaporation producing cold. Such transitions

are very common, and warm days are very often
succeeded by cold nights.

6. That frosts are frequently observed in the southern, tho, never
are now at the same time in the northern countries of
Europe. This might be accounted for by the vicinity of these
northern countries to the sea, or to their being surrounded
by water; which tends to make a country warmer.

7. That the quickness of freezing in stagnant water
is not proportioned to the degree of cold. This depends on
the quicker or slower motion of the air. When the air is
in motion, the warmer will be carried off, & the colder applied
in its place. When the water will be sooner reduced to ice;
the quickness of freezing is in a ratio compounded of the degree
of cold and the agitation of the surrounding air.

8. That a mixture of salt and snow placed over the fire will
purge water placed over it, which Muschenbroeck thinks is
owing to the frigorific particles leaping from the mixture to
the water. That by no means a sufficient cold
produced by the mixture is so great as to freeze the water
long before the fire can extend its heat to it.

9. Aqua fortis, or nitrous acid when joined with ice produces cold
when mixed with water heat. Ought to have been
remembered

As remembered that ice & water possess very different proper-
ties, we can account for the cold evolved in the former
case, & the heat extracted in the latter; without bringing
in the frigorific particles —

10. We oftentimes during the night see no hoar frost on
on the ground, but after the sun rises we discover it cover'd
over with crusts of frost. This is undoubtedly true.
Muschenbroeck in this case supposes that no frigorific
particles exist in the air in the night time, but that they
come in in the morning. This may be owing to the
rays of the sun occasioning evaporation, & that produces
cold. The cold in the night may not be sufficient to freeze
water; but so near it that when evaporation takes
place the cold produced will more than counterbalance
the heat of the sun; consequently congelation will take
place. We shall hereafter shew the connection between
evaporation and the generation of cold. —

11. Ice water Muschenbroeck observes is hard until
boild. Boiling he supposes dissipates the frigorific particles
But this is deemed to be different by others. By hard water
mean such as will not easily dissolve soap or boil vegetables
well. The hardness of snow or ice water is very transitory
con

been owing to its extreme coldness, for when warm, melted it is as soft as rain water.—

12. He says that the inhabitants of the alps are afflicted with a disease called guttur tumidum (quis guttur tumidum miratur in alpibus? Juv.) which he attributes to their drinking snow water impregnated with these imaginary frigorific particles. this argument has no force at all, as all those persons who live in the alps and drink snow water are not afflicted in this manner; neither are the inhabitants of the andes, who also use snow water as freely as they are upon the alps.—

13. That all bodies contract by cold except water, which is enlarged when it becomes ice. What can this be owing to says Muschenbroeck but to the accession of some frigorific particles? Ice however is not heavier than water. This he allows but says it is owing to the extreme minuteness & subtility of these particles. He did not consider that regulus of Antimony & iron expand upon passing from a solid to a fluid, ^to a solid^ state. Can these cooling particles enter into these substances when they are red hot? No. It cannot therefore be owing to the absorption of frigorific particles

That ice expands is owing as we before hence assumed to a Chrystallization taking place; consequently interstices must be left ——

3° Van Swieten in his commentaries on Boerhaave's aphorisms admits this theory of frigorific particles. For in speaking of that kind of gangrene which arises fro[m] limbs being frost bitten, he advises cataplasms of snow or ice which he imagines prove useful by extracting the frigorific spiculae: but this notion is, also. A cataplasm of this kind acts as a stimulus & producing a vigorous circula[tion] in the frost bitten limb. Van Swieten calls into his assistance the analogy of a frozen apple. He supposes that cold water produces its effects in thawing a frozen apple by attracting the frigorific particles which he says may be seen in the form of spiculae on the surface of the apple. But we account for it thus: the water in which the apple is immersed parts with its heat to it untill there an equilibrium produced. The water more immediately in contact with the apple communicates its heat to it more freely & quickly. It therefore is frozen & forms numerous spiculae which adhere to the apple. Thus these spiculae not extracted from the apple but formed in the water. warm water has not the same good effects upon these frozen fruit into it, for it imparts heat to them so rapidly that it destroys their texture —

After what has been said we have reason to believe

th

that fluidity is the natural state of all bodies and that all substances can be turned into fluids when they are sufficiently acted upon by a sufficient degree of heat. He therefore concludes that all solid bodies that we are acquainted with contain many pores, that the fluidity of water depends upon the spherical figure of its particles; but that this is by no means the case for all bodies that must consist of spherical particles as they all may be turned into fluids by heat.

His definition of the expansion of fluidity is that the first there is a regular progression in the heat according to the degree of heat applied; but in the 2d the transition is sudden. There are certain points in which bodies called frozen are regularly turned into fluids all bodies become solid. There are different in different bodies, but are very constant in the same body. There are also bodies that have an intermediate state between fluidity & solidity, as wax, resins &c. He shall here explain a few chemical terms. Those bodies which are active in the common temperature of the atmosphere and are capable of becoming fluid by heat, & are afterwards restored to their former state are said to be capable of fusion. Ice, salts, & metals belong to this class. Those bodies that do not assume their former appearance

52. but become smooth and transparent after fusion
said to be nitrified, or to have undergone nitrification. To th
class belong earths, stones, & some metallic calces. And
when metals undergo this operation it is called scor
Fluidity depends upon the presence of heat in a lat
state or quiescent state as well as in a sensible state. Th
curious property by which heat almost itself affo
characteristic mark, that of being susceptible to the
thermometer or the sensible was first discovered by Dr Bl
He has shewn that heat exists in two different states. I
he calls absolute or latent heat, the other sensible. To illust
this he made the following simple but conclusive exper
He took two similar pots of the same size, & heated them
So to the one he put a pound of water into the other a pou
fire. He found that the water received seventy 212°,
but the ice after melting had acquired only 140°. He the
concluded that 72°. must have been absorbed, & become
latent in the passage of the ice from solid to a fluid state.
The cold generated by the solution of ice in nitrous acid
owing to the conversion of sensible into latent heat a
heat arising from the mixture of nitric acid with
is occasioned by the conversion of latent into sensi
heat — From hence we see the reason why Mixtu

weather is generally milder before a fall of snow. ~~as it~~ must in its formation part with a quantity of its heat to the atmosphere. And, on the contrary, we see, that the coldness & rawness of the air attending a thaw, is owing to an absorption of heat, or the conversion of sensible into latent heat, upon the melting of the ice or snow.

All fluids contain a quantity of heat in a latent or quiescent state. The ocean abounds with it; & it is probable, that, by the conversion of this into sensible heat, the earth will be prepared to undergo the great change at the general conflagration. Hence we see the Infidels are as devoid of faith as philosophy, when they assert that the water of the terraqueous globe will prevent the effects of fire. So far from this, it is probable that the ocean may contain in its watery bosom the fire that is destined to wrap the earth in flames at the last day. To begin the dreadful scene it is only necessary for the great creator to let go the chain which confines in the ocean its immeasurable quantity of latent heat.

As we have already considered the history of cold, and its effects upon several of the objects of Chemistry. we shall here extend these to one more, viz. anim. bodies.

We have already spoken of measuring the degrees of heat & cold. We shall now mention the methods of preventing the harmful & morbid effects of cold ——

54.

The human body is accustomed to receive an uniform
sensation of Cold when the mercury falls below 62.° of Fahrenh.
thermometer. This measure increases as the mercury
descends, until it becomes painful. Animal bodies have
a power of resisting the effects of heat or cold to a certain
degree. Heat lessens and cold increases the action of the
vessels generating heat in the system. Thus from the
means of obviating their own bad effects. But sometimes
times the degrees of heat & cold are too powerful to be overcome
by the efforts of nature. In such cases Physicians must
call in the aid of art. And it will be pleasing to the
philosopher to enquire how the means commonly employed
for this purpose, produce their salutary effects; and in what
manner he can best assist them must endeavour to increase them.
The first means that we shall recommend is Means of Heat.
We need not adduce the Opinions of Physicians as to the
efficacy of this practice. All Men who use the cold bath.
agree. That it renders the system less sensible to Cold. Hence
Used to sea Boys Children, &, by the rigor which it gives to
the system renders them less liable to the effects of Cold.
2.° Wearing loose garments of Fur & wool. Men are ever
apt to imagine on common occasions; but they are
only so from transmitting heat less freely than linen,
silk &c. Loose garments were formerly much worn by

by the Romans & even now by the inhabitants of [...] as being warmer in winter & cooler in summer. They are warmer in winter by confining the perspiration in greater quantity. When the perspiration is carried quickly the body is kept cool. Hence the difference between windy & calm weather. Hence the reason why different persons are so differently affected by the same state of the Atmosphere, by the perspiration being carried off quicker or slower.

The 2d method is commonly said to consist in avoiding heat & thus hardening the body. This is an universal prevailing opinion, from a supposition that heat increases the sensibility of the system; but from the facts that I have met with this appears in some measure a vulgar error. The Germans who in general sit almost constantly in warm stove rooms, the heat of which is from 86 to 90 degrees are the most robust & healthy people amongst us, & best able to resist the effects of cold. The West Indians bear cold as well as them the the natives of this country. The heat of the climate is seldom under 66°. In Siberia the Russians use a vapor bath twice a week, the heat of which [...] & afterwards plunge themselves into the snow. The heat of their stove rooms is generally 104°. & yet they

will brave, work the out whole days without coming near a fire. The coldness of their climate may be judged from their earth being covered eight months in the year with snow, that the ground is frozen ten feet deep, and that the mercury in the thermometer seldom rises for many months above 0. From these facts is it not probable that heat produces insensibility to cold: may not heat & cold produce reciprocal effects in the extremities of the nerves of the skin & assist each other in strengthening the system? It is however only a very great degree of heat, or a moderate degree long continued, which will have the effect of producing insensibility to cold. Hence the reason why we cannot bear the cold of our climate so well. because the heat of our summer is not intense enough, or does not continue for a sufficient length of time to fortify us against the changes of the winter. Europeans bear the heat in the west indies better than the natives. This sufficiently refutes an argument brought in favour of the slave trade or taking negroes to the west indies — If a European escape for the first year he will do more work than several negroes. The country from which the negroes is so fruitful that almost every necessary of life is spontaneously produced. The inhabitants therefore live without labour. Labour in warm climates is not conducive to the health of man

3° It appears that he was not destined for it in these circumstances by the creator. Altho' it be granted that the natives of cold climates bear heat better than those of warm climates, yet it will not be so readily allowed that the reverse takes place. Thus it is the common opinion that New Guinea negroes will not bear the cold so well as the natives; but my observations do not confirm this notion. The circumstances that gave rise to it may be accounted for by that languor & depression of spirits, which are the natural consequences of slavery, & to their being illy clad. The 1st method is to keep the feet warm. The effects of cold are here first felt, on acc! of their remoteness from heart & brain. The Indians seldom feel any inconvenience from sleeping in the open air if they have their feet to the fire. There are several ways of keeping the feet warm. by wearing loose coverings to them. For this purpose the ... or Indian shoes are very well calculated. In Canada in 1759 the soldiers who wore the mockasins had not their feet frost bitten, whilst those who wore shoes, & were exposed to the same inclemencies of weather, were affected in the above mentioned manner. But 2.^dly if the feet are above cold so as not to admit of motion, as walking & running exercise, (this happened to more than one in company

company. The method used by a gentleman of the Delaware state may be used with advantage. He attempted to cross the Chesapeake Bay late in the evening; but was frozen up in the middle of it. The prospect was gloomy, and there was no appearance of relief. He found his feet grow exceedingly cold. To relieve this he pulled off his boots, rested his feet against the ferryman's breast, after lying down in the boat, suffering the ferryman to do the same to him, and covered both with his great coat. after a while they fell asleep. They slept all night. the gentleman awoke in the morning in a sweat, & found the ice sufficiently hard to lead his horse ashore. I have another fact. A Gentleman was walking to town late at night. He was overtaken by a very heavy storm of snow, & lost his way. He lay down at the foot of a tree expecting certain death. His dog came & lay down at his feet, as willing to share his fate. after some time he found his feet warmed & fell asleep. In the morning he awoke covered with snow & pursued his Journey to town in perfect health. 3dly wetting the feet in cold water or plunging them in snow; thus exposing them to [illegible] a greater degree of cold. The Indians break the ice & plunge their feet

60, in to brooks to warm them, when they begin to free
I have heard that our celebrated countryman Dr. Frankl
makes a practice of standing on a marble slab or tile
to remove the coldness of his feet. Cold long continued ac
a sedative. A greater degree acts as a stimulus, and rouses
the vessels to action. In a certain degree cold is for a while
mulant. After a while it acts as a sedative. A great
degree will then act as a stimulant. We may all
have observed that we cannot sleep with cold feet. T
is a wise provision of nature to prevent us from sleeping
the sleep of Death. If a person can go to sleep with col
feet he is not in health. As it is frequently inconveni
to jump out of bed, it will be sufficient to throw your
from under the clothes.

The fifth method is washing or rubbing the af
part with ice or snow. This is a common practice
the Danes, Russians, and other inhabitants of the
northern parts of Europe. The action of this may
be understood from what has been just now said.

Sixthly. Suppose a person has endured the utmo
extremity of cold & has been torpid & numb; it is the
common practice to use frictions & pour down
spirituous liquours. The

[illegible]

The former is in no case to be omitted; yet it will frequently fail, as the nipples in the surface are too torpid to be roused by it, & even if they are roused by it the internal parts will not perhaps be excited into action. Spirits are improper as they operate slowly. Some persons have no action at all, owing to the habit they have been in of taking them frequently. A fact which I have met with may lead to some useful practice in these circumstances. A man in riding some distance was so benumbed by the cold as that he fell from his horse. After some time he awoke with violent vomiting & purging. He recollected that just before his fall, he had a large quid of tobacco in his mouth, which he supposed he had swallowed; & to this circumstance he ever afterwards attributed the preservation of his existence in this world.

There are two facts which it may be proper to explain here. 1. Why a damp day appears colder than a dry one, when the Thermometer points to the same degree of heat. The moisture in the air acts as a conductor and carries off the heat of the body.

2.^dly Why the sense of heat in summer is greater on a damp day tho the thermometer stands but at 80, than in a dry day when the mercury stands at 85. or 90.° In the moist day the air being already saturated with vapour will not carry off the perspiration so well as in a dry day.

We shall next make some observations upon the means of preventing the disagreeable effects of heat upon the human body —

First, Great regard is to be paid to the situation & construction of houses. In this country houses fronting the South are coldest in summer but the contrary in great Brittain. Most of our cold breezes in summer come from the South west or about South. The cool breezes in this situation will be more certainly ensured to you if you have a narrow avenue leading to your house which will encrease the velocity of the air. This is explained by a law in hydraulicks, that lessening the channel encreases the velocity.

with regard to the materials of Houses Stone
seems to be the coolest. The walls must be very thick
in Summer they be composed of Mud the heat may not
penetrate. Houses thus constructed are not only cool
in summer but warm in winter. The likewise of con-
sequence to exclude the sun as much as possible not only
by shutting the windows shutters but also the sashes.
The Chimnies of consequence to have a chimney in each
room, by which means a constant circulation of air
will be produced. From ten in the morning till six or six
in the evening there is a current down the Chimney.
It is then necessary to open an door or window that
afternoon it changes towards. From this current through
the chimney it is that the coolest air in the room
must first part. In the Chimney the air is of an
uniform temperature throughout. By 10 Oclock the sun
acquires sufficient heat to rarefy the air above. It there-
fore ascends into the chimney, & thus throws the air contain-
in the Chimney down into the room. In the evening
after 5 or 6 Oclock the air below being more rarefied than
that above rushes up & thus forms a current up the
Chimney. Bedrooms particularly should have

64 chimneys, as it is unsafe to leave the doors & windows open, which we must do if they are without chimneys. I will go further and assert that it is necessary to have chimney's even in cellars. As there are then of considerable advantage 1.st For preserving vegetables which will never grow mouldy under these circumstances in cellars. 2.dly To prevent damps, sometimes from noxious. When they ferment, for may produce putrid diseases. Another means of guarding against the oppressive effects of heat at night is to lie on that are not soft. Hence matrasses are proper, which not increase the perspiration & hence are not so weakening to the system — The second method is by an attention to cloathing. Every body knows that the cloaths should be thin in summer. Silk & cotton are preferable to linen. Some facts lead to prove that linen is not so wholesome when worn next the skin as woolen or cotton, especially if the linen cannot be changed frequently. The looser the outer garments are the better hence gowns are preferable to tight bodied coats.

Thirdly by shewing a due regard to diet. Animal

animal food more heat more than vegetable
as being more stimulant. Hale writes suppose
that all the heat of the body is derived from the food
which is taken in Suppose that animal food contains
it in larger quantity than vegetable. It may be so.
But independent of this, we may account for the heating
effects of animal food from its stimulating properties.
Therefore in summer less animal food should be used than
vegetable.

The fourth method is by paying a due attention
to drinks. In this climate is an insufferable manner
to avoid drinking a great deal. The more ascescent
drinks as the best as beverage, weak punch &c. All
stimulating drinks are particularly to be avoided;
as strong wines, spirits &c. There is not a more absurd
opinion than that which prevails among the
country people, that spirits fortify the body against
the effects of heat. It is certain that a man who drinks
vinegar and water, buttermilk & water with bread
& butter than a man who drinks half a pint or more
of spirit every day, for the body is thus by may be
abled to make greater exertions for a time. yet

66. After this exertion is entirely convulsive & is soon
succeeded by debility -
Fifthly, tranquility of mind is absolutely necess.
Hence those who complain the least, suffer least from
Persons of an irritable habit of an unphilosophical
unguarded temper, who fret & fume & fan & are conti-
-nuing from place to place suffer much more th.
persons of solid & stoical dispositions who sit still & suff
themselves to be cooled by their perspirations.

But if a disease be already produced by the ex
of heat which we sometimes see in this city, so
as even to produce death, what is to be done? Men
are frequently affected in this manner. At the battle
of Monmouth several british soldiers were found de
who had not the least mark of a wound. Their death
were certainly owing to the excess of heat. This dise
comes on with a faintness, a difficulty of breathin
& a sighing & heaving with great pain. He feels an in
position to walk therefore is desirous to sit down.
He falls down; his breathing is extremely labo
his mouth parched; his skin dry; & continue
has

half an hour & if not soon relieved the patient dies. by
He may be relieved by simple remedies. Cold water is
the best application. This will succeed even when applied
to the hands or the feet by plunging them in; or by throwing
it in large quantities upon the face & if from an height
so much the better. The colder the water is the better.
Frictions likewise should not be neglected. By these
means many have been relieved, & they will succeed when
applied to horses. Carters or carters who use their
horses with great inhumanity often pay for their cruelty
by losing one or two in a season from the effects of heat.
They often however recover them, especially within these
few years, by the application of cold water. I once saw the
effects of this when a horse after falling down, from the
violence of the heat, was recovered by throwing 20 or 30
buckets of water upon him. I am not very certain but the
very warm water acting as a stimulant might not
have the same good effects as cold water. I only throw this out
as a hint. I once heard of a gentleman, who in these circumstances
was relieved by putting his feet in very warm water
)

68. We now return to speak of the third grand Effect of Heat viz.

3 Of Evaporation.

Vapour is a light transparent substance resembling to air, but more considerable elasticity & capable of rarefaction by heat, & condensation by cold. As an instance of the power of vapour is that one drop confined in a small glass vessel & exposed to the fire will burst it with violence after some time. From this property vapour is most extensively useful in the arts. One instance will suffice to illustrate this. Put a little glass blow Pipe into it, which being connected to receive exposed to fire with the assistance of a small exertion of the breath, the vapour of glass vessels can be used. From the effects of vapour the bragians are solicitous to keep water from their brass when in fusion. Vapour, like steadily, depends upon heat, as it returns to its natural state by abstracting the heat. The degree of heat necessary to produce vapour is greater than that which is required for the production of steadily. The

There is a difference in the vaporific point, some bodies requiring more heat than others to convert them into vapour. Hence proceed the terms fixed & volatile. These terms are entirely relative, as no body has been found out so fixed as to resist the vaporific power of heat.

As the pressure of the air has great influence on evaporation and as it is carried on much more rapidly in a rare than in a dense atmosphere it is necessary to have recourse to the air pump where the pressure is always the same accurately to determine the vaporific point of different bodies. In the the vacuum Ether evaporates at 96°. Spirit of wine evaporates and boils violently from the warmth of the hand. From a knowledge of the principles of evaporation we account for boiling. Some say that it is owing to water not containing more than a certain degree of heat; but this is not the case, as water when confined will contain more than 212° of heat. This is the case in Papin's digester where water may be made so hot as to melt lead & tin according to Muschenbroeck. Papins digester was first used by epicures to extract a rich soup from bones. This dish is now laid aside as it is not worth the trouble of preparing.

2/C. Water is derived boiling from the expulsion of air. But the air would be soon dispersed. Why then should boiling continue as long as a drop of fresh water is the reason is that the liquid must in contact with the fire is rarefied or converted into vapour hence ascends in the form of bubbles, which burst on the surface of the water. That water is not so hot after as just before boiling is owing to the evaporation which then takes & the connection that subsists between evaporation & generation of cold.

The vaporific point is so far from being the common boiling, that some have at below the point of fluidity: it is some substances of some the form of vapour, before they become fluid, even in the common temperature of atmosphere; such for instance are Camphor, Iodine, salt, arsenic & Zinc.

We shall now explain a few chemical terms.

Evaporation is when the volatile parts of a body exhale from the fixed behind as in the making of bay salt.

Distillation and Sublimation are the same the former. Thus is instituted to procure the volatile parts

When the products is fluid it is called Distillation. 75.
When it appears in a solid form it is called Sublimation.
Products which are are called Flowers or Sublimates
according to their appearance.

That capacity of producing vapour in all bodies
Earths seem to be the only bodies in nature which resist the
vaporizing power of heat. Even gold the most fixed of metals
which Mr. Boyle kept in fusion for two months & upwards
in capsules of evaporation, has been made to fume by
the concentrated heat in the focus of a burning glass. We are un
quainted with the greatest degree of heat that may take
place. And is therefore supposed that the non existence of the
earths is owing to the insufficiency of the means employed.
Hence conclude that there are no bodies in nature that
are proof against the vaporative power of fire ——
The evaporation mentioned above which takes place
in the common temperature of the atmosphere in some
bodies as Camphor Arsenic &c. is called spontaneous
The vapours produced by it differs no elasticity & differs
from that of water produced by heat. The greater the
surface exposed the greater will be the evaporation
Thus, a wet sponge hung up in the air soon becomes

72. dry, by reason of the great extent of surface
When the vapour is confined evaporation will take
place only to a certain degree –
Vapour is always produced by heat, & when the
abstracted it is again condensed. From this we a
for the drops of water that are frequently observed t
ling down the sides of such vessels as contain cold
as the vapour contained in the atmosphere is cond
on the vessels by the coldness of the contained water
This is illustrated by the condensation which takes
place when we breathe on a bottle of cold water.
This is also observed on the windows of bedcham
on cold dry mornings. Hence also the frost w
is observed on houses & rocks in the midst of a tha
for the wind that brings the thaw is generally loadi
with vapour, which meeting with the cold house
rocks is condensed. On the same principles we a
for the production of dew, rain, &c The ground be
warmed during the day by the sun sends up a q
-tity of water in the form of vapour. This vapour
sed afterwards by the coldness of the air returns to th
earth in refreshing dews ——

The rising of misty fogs from low marshy places
depends upon the same cause. The unwholesomeness of fogs is owing to their arising from putrid stagnant water. Hence we also see why vapour rises so copiously from a hole broken in the ice; from the heat of the water contained under it. Water in the same manner rising from rivers the ocean &c. forms clouds which when condensed descends in the form of rain or in gentle showers: when congealed in the air in the form of hail & snow: and after answering the purposes for which it was designed is poured back into the bosom of its parent ocean.

Spontaneous Evaporation has been accounted for in different ways.

Mr. Derham & others say it arises from the air in the fluid being expelled by the heat & carrying with it some of the fluid in the form of bubbles — This argument is from water rising in the air pump when the pressure of the atmosphere is taken off. But we know that the evaporation continues while a drop of the fluid continues, & besides such bubbles could not be raised into the air.

Gravesend & Muschenbroeck say that it only requires

^2 It a smaller degree of the boiling heat to bring evaporation. But this cannot be the case, for then the vapour would be elastic. But we know that spontan. vapour is perfectly inelastic. Some more probably [illegible] that air acts as a solvent upon fluids, & thereby causes [them] to evaporate. In many respects there is a great ana[logy] between solution & evaporation. first Solution [is] encreased by heat. The same is the case with resp[ect] to evaporation. Thus boiling water will dissolve [a] quantity of salt, which it cannot retain in solu[tion] when cold. In like manner by the accession of col[d] vapour will be condensed & will recover its former [state]. 2, Solution is encreased by encreasing the surface. The same takes place in evaporation. 3 Agitat[ion] quickens solution: there is also described in evapori[zation] which is much promoted by the agitation of the [air]. But evaporation can be carried on in an exhau[sted] receiver quicker than out of it & the more perf[ectly] the air is exhausted the sooner will the body [be] Evaporation seems to be a diffusion of the particle[s]

particles quicker in air. Windy weather appears to promote evaporation by dispersing the vapour collected over the water & thus giving opportunity for more to rise. Hence the roads that have been wet by preceding rains are dried much sooner in windy weather, than in a still state of the air.

It is now fully established that cold is always generated by evaporation. This doctrine was first started by Mr Baume & soon after by Mr Richman of Petersburgh. Dr Cullen was the first who by many conclusive experiments fully ascertained the matter. Dr Franklin has since enriched it with many practical observations. This is a discovery of some importance in Chemistry & medicine. I would advise you to peruse Dr Cullen's essay on this subject in the Physical & Literary Essays of Edinburgh Vol 2. Page 145. We shall illustrate the truth of this by Dr Cullen's own experiment. A thermometer dipped in spirit of wine & afterwards suspended in open air will cause the mercury to fall several degrees & it will continue to do so while the bulb is wet with the

76. When it begins to dry the mercury to return its former height repeated dipping will produce more remarkable sinking of it. The sinking of the liquor in the tube would be hastened by blowing it, or by moving the thermometer nimbly to & fro the air. Dr. Cullen by the application of Spirits observed the mercury sink from 44°. to below the freezing point. With ether in vacuo it sunk from 50°. to 20°. —

The cold produced by evaporation is of great use in many places in the warm eastern countries especially. thus the inhabitants of India, China, Persia & Egypt have cups composed of an earth so porous as to allow a good deal of what they contain to transude. By the evaporation the contained liquour is effectually cooled. These cups they cover with a red cloth in honour of their Lama. Mr. Rouelle had a cup of this kind which was given to him by a Physician who lived 20 years among these people. In Egypt whole towns are supported by the manufacture of these cups. Those who travel the deserts of Arabia suspend their liquids under the

bullets of their horses, or other beasts of burthen
are usually constructed on purpose to prevent
them cool from the evaporation which the motion
of the animal occasions. This is an excellent con-
trivance where springs & streams of water are
The custom of cooling liquors by evaporation is not
confined to the Eastern countries; but is practised in
the Levant & in many parts of the W. Indies They cool
them with by wrapping a wet cloth round the bottle
containing it & then exposing it to a current of air.
That the evaporation may be quickened by carrying off
the vapour already formed -
The cold is proportioned to the evaporation which
takes place Say air this is carried on more rapidly
in a dry than in a damp air & consequently
more remarkable in one air pump. Other vapours
so quickly as water that a tea cup full of Ether in
a bowl of water will be converted into vapour & freeze
the water in a few minutes on the hottest day: From this
we may be enabled to understand a fact mentioned by
by Dr Russel in his Natural History of Aleppo

78. That during the time the southern winds blow
are extremely warm, the water that surrounds the place
is cooler than at any other time: this must be owing
the heat promoting evaporation, & wind carrying off the
vapour as fast as it is formed. Hence we may under-
-stand why low marshy grounds are cooler than
dry lands; why the cultivation of a country by
raising of grain renders a country warmer, as the
moisture of the earth is absorbed by the plants and
enters into their composition instead of instantly
evaporation; why it is dangerous to sit in a wet
room, & more particularly if at the same time
is a large fire in it, as this must increase & accelera-
-te evaporation: why sprinkling the floor with
or water produces an agreeable coolness; why
moist weather especially if attended with cold is
productive of febrile diseases. A more curious phe-
-nomenon than either of these is, that, tho the heat of
the human body in all climates & in all coun-
-tries is invariably between 96° & 100° yet the
of many climates whose inhabitants enjoy

very good health, very considerably exceeds that of 97 degrees. Dr. Irving of Charleston S. Carolina, tells us in the Philosophical Transactions, that he often observed the mercury stand at 126° and Dr. Shubeare in his practice of Physic informs us that in Syria the mercury frequently stood at 116°. and that the inhabitants not only lived but enjoyed good health. The heat then must have been carried off by perspiration & sweat, as the discharge from the surface by these means is always proportioned to the degree of heat; & the cold produced by evaporation is always proportioned to the perspiration. Hence the reason in the most intense heat of summer we suffer less than they must most precisely.

We are next to treat of the fourth general effect of heat viz

4 Of Ignition.

This effect of heat is more universal & is produced with more uniformity than the three others. It is ever present at all times, in all bodies, & in all places. All bodies that emit light & heat & appear luminous

 on their surface are said to be ignited. All bo
when ignited contain equal degrees of heat. It
difficult to determine where ignition begins, as
ces will appear ignited sooner to those who are accu
them to those persons whose organs of vision are
Therefore opinions on this subject will be different
Dr. Martin supposes that red hot iron contains m
heat than burning wood; but this is false. B
may be rendered hotter even after ignition. Iron
cording to Sir Isaac Newton whose calculations
may be depended upon) is ignited at 635.° b
will admit of a still greater degree of heat to melt
Mercury takes upwards of 600.° to make it boil, & as
the boiling point of mercury is nearly the same a
in which it is ignited. This confirms the truth of Newt
observation as we know that the point at which a
bodies ignite is nearly the same. Boerhaave
asserted that metals will not become any hotter af
melting. This he infers from a supposed analogy of wa
But this is not the case. There is no body in
nature but may be rendered red hot, or become ig

ignited if the vapour be confined or prevented from escaping. Even water may be ignited with a sufficient degree of heat if the vapour is confined. Water in Papin's digester may be made so hot as to melt lead & tin which is but a few degrees from the point at which iron ignites. The vapour of   when immitted into a red hot furnace appears of a bluish colour which is owing to its being there ignited —

Having thus considered the General Effects of Heat before we enter upon those of Mixture we shall say something of

Inflamation.

Inflamation is confined to one class of bodies which are from thence called inflamables. The effects of heat on these bodies differ from those on other bodies in the following particulars.

1. Inflammable bodies suffer change or diminution of weight.
2. Inflammation is produced in some bodies from slight causes.
3. Bodies when inflamed emit light & heat during inflammation
4. All bodies after inflammation leave some recrement.

 element which is uninflammable. I do not know except spirit of wine which was called the pabulum ignis by Boerhaave or sulphur. Sp. of wine be burned under a bell a considerable quan of water will be collected. Sulphur may be collected in a different form after burning in nearly as great a quantity as before inflammation

5 The presence of air necessary to produce & continue inflammation & it will be carried on according to the purity & density of the air; hence it is greatest in cold weather. Air feeds flame only to a certain degree & unless fresh air is supplied inflammation is not carried on. Some have supposed that air feeding flame to a certain degree only is owing to its becoming surcharged with vapours from the inflammable but this is not the case as many vapours rather than feed extinguish flame. Sir Isaac Newton from the the nitrous acid to produce flame when mixed with inflammable bodies supposed it to be owing to nitrous acid in the air. But no nitrous acid exists in the air; and it would be necessary that there should be a vast quantity as immense bodies

[illegible]

at the same time. It appears to be owing to a
combination of the Principle of Inflammability
& Phlogiston with common or atmospheric air
producing fixed or Phlogisticated air ——
Air then supports and feeds flame. The conical form
& singular manner in which flame ascends owing
to the action of the air. It cannot with its substance
which we call soot. This is a combination of C with
a certain quantity of some portion of the inflammable
body & a small quantity of volatile salt. That it contains
C is evident from its taking fire so readily & soot is
produced in largest quantity when the inflammation
is most rapid —

The principle of inflammability is never destroyed, but
always exists under some new form. For whenever in all
bodies it may be communicated to bodies which have lost
it some thing containing it which have the appearance
of flame. Thus by adding charcoal to the nitrous acid
sulphur will be formed, & flame will take place
if we add any other substance containing C. This
principle is called by Macquer & other Chemists

84. Chemists Phlogiston. but Jelsom with Dr.s to call it the principle of Inflammability - By the Principle of Inflammability (🜂) we mean that principle which produces flame or is the cause of inflammation when combined with other bodies, tho not inflammable or capable of inflammation by itself in a separate state —

You have now seen the general effects of heat on the objects of Chemistry. We might here make some observations on its astonishing powers —

It is the grand principle of activity in the uni-. The most solid bodies are expanded by heat. This expansion is so great that to it some philosophers have ascribed the swelling of the earth at the equator; the ascent of vapour & all the blessing of hail, rain & snow are produced by heat. The flame which so comfortably warms us in winter & is so useful in our Kitchens & labor-ies is occasioned by heat. It is the source of life in plants & animals. When heat is withdrawn burn them becomes & the beauties of vegetable nature fade. Upon the return of it they again shine forth.

in their original splendor. Animals also owe their
existence to heat. Thus birds, reptiles &c. lie in a
torpid state during winter. But when the prolific rays
of spring warm the earth again called forth to life
& action. It not only recalls life when about to depart
from its possessor; but also in some cases gives it. Thus
in the incubation of eggs, when a heat of 96° is con-
tinued for a fortnight the first rude animales
produced. How wonderful are the operations of heat.
How wisely are they regulated by the succession of day & night
winter & summer! We cannot but sufficiently admire the
goodness of the great Creator in governing the orders of the
universe! Should the laws of gravity be suspended
who can tell or forget to awake in her orbit, how terrible
would be the consequences! Should the withdraw
herself but for a moment from the sun all nature
would be locked in chains. Water that heavenly gift
human would cease to flow. Plants would forget to exhale
nourishment & gratefully to distill upon the earth refres-
hing showers. Plants would die & all animals

 animals would soon be extinguished. In a the air and every other fluid would become a dense solid mass. On the other hand, the effects would be equally dreadful, were the earth to approach too near the sun. The air would lose its elastic force, rivers would overflow their banks; the parched earth would refuse to afford nourishment to plants and animals, & all nature would reassume its primitive chaos.

Of Mixture.

The effects of mixture are more confined than those of the but it is the second active principle in nature & it is difficult to point out an operation in nature going forward without discovering mixture.

By mixture we understand the union of dissimilar b This is very various in nature & in appearances. Some bodies unite homogeneously; some but for a short ti some produce heat; some cold; some unite with & impetuosity producing effervescence; some unite silently. Of each of these we shall give an instance.

1. Salt & water unite homogeneously & intimately.

2. Wa

2° Heat & Sol. unite only for a short time: the
water soon subsides & the salts on the top 3 Vitri
lic acid and water generate heat 10° or 15°. 4 Nitre
Inactive produce cold; 10° or 12°. 5 Sp. Sal ammoniac
Some of the acids must together with violence Simple
-city. 2 Some effervescence takes place, thats, they send forth
fumes. This is owing to the extrication of fixed air.
Solution & Fermentation as distinguished from Effer
vescence, The former is produced by the mixing of fluids;
the latter is a gradual tendency towards an assimilation
of different bodies with little noise & small separation.
Sim. 6. Corrosive Sublimate of Mercury unites slowly
Sentimentally without any sensible motion. —
Mixture is divided into Chemical Mixture
Solution and Diffusion.

1. Of Chemical Mixture.

Chemical mixture is a common Menstruum
and ambient as of Sp. Sal ammoniac & Nitric acid.
The following circumstances are necessary to constitute
Chemical mixture. 1. That the bodies after mixture
lose some of the properties they had separately. Lect.

od. but form a tertium quid. 2.° That there is agita-
tion of heat. This invariably accompanies. 3. Only two
bodies can be united at one time. 4. Bodies which are
before volatile become more fixed by mixture.
These marks of Chemical mixture cannot inexistence
but if taken together will form characteristic

Of Solution.

Solution is when one body is so intimately united
or surrounded by another that they appear homo-
gen. The body to be dissolved is called the Solvent
that which dissolves it. The Solvend or Menstru
The last term arises from the notion of the ancients
who in most cases allowed a vis mortua for the solution
imagining that it required that space of time for it
render the solution perfect. Solution differs from
Chemical mixture in the following mentioned.
1 In Solution there is no change of texture by. Thus a
piece of salt dissolved in water is salt still, tho it contains
an infinite number of minute particles, & may be again
concreted into former state. 2 It is not attended
with a generation of heat, but always of cold C. G
Saltz.

Nitre dissolved in water produces cold.

3. In solution more than two bodies can be united: thus we may dissolve nitre in the same water in which common salt is held in solution, & it will nevertheless remain homogeneous. After a fluid has become saturated with one body we may add another which will also be taken up & the fluid will be now enabled to suspend more of the first. Thus after water has dissolved as much common salt as it is capable of retaining in solution, we may dissolve in it a quantity of nitre & it will then dissolve a fresh portion of common salt. This appears to be owing to the introduction of a quantity of water in the nitre

Solution has received various appellations according to the manner in which it is performed.

1 Maceration is when the virtue of the solvend is extracted by a heat below that of boiling water.

2 Infusion is when the fluid at the boiling point is poured on the Solvend & suffered to remain on it till cold.

3 Decoction is the continued ~~heat~~ of application of the boiling heat to the substance whose virtues we wish to extract

90. 4. Digestion is when a fluid above or below the boiling point is continually applied to the ~~boiling point~~ solvent; but it is more properly termed so when carried on in close vessels and above the boiling point.

5 Circulation is, when the vapour that arises is condensed, & returned again to the vessel in a liquid form, to act upon the body.

6 Deliquescence is, when a body is dissolved by exposure to the air; which we know contains a portion of water always in it, even in the hottest climates. Ol. Tartar per deliquium is prepared in this manner.

7 Amalgamation is the dissolution of any metal in mercury.

In Solution the following circumstances influence the operation. 1. Bodies dissolve quicker in proportion to their surfaces. Thus marble may be dissolved quicker in an acid if pulverized & metals by being beaten out.

2 Solution is quickened by agitation, by which a greater proportion of the menstruum is applied to the Solvend. Thus Spirit of Wine poured gently upon water will lie on the surface without any appearance of union

union. But one shake of the phial will so intimately unite them together that they will remain so for many years.

3 Solution is quickened by heat, & more of the solvend will be taken up. Thus water which dissolves $\frac{1}{6}$ of its weight of nitre when cold will dissolve a much greater quantity of it when heated. How great the power of heat is in increasing solution may be understood from what is said formerly of Papin's Digester

4 Solution is assisted by the contact of air. Air is so necessary to solution that some have imagined that all bodies owe their fluidity to its presence. If Copper & Spirit ammoniac are kept excluded from the air they have no effect on each other, but the moment the air comes in contact with them they act on each other. The action of air in solution is further evident in this that if any common substance be kept in a stopped vessel they will be only affected when the two come in contact with the air at the surface. If water saturated with nitre be put under an exhausted receiver the nitre will immediately fall to the bottom.

Of Diffusion.

92. Dissolution is sometimes called mechanical to distinguish it from the true solution we have been speaking of. Dissolution is distinguished from Solution, 1. In having a twofold appearance. 2 in not being perfect but depending entirely upon agitation. Thus water united with water is said to be dissolved in it. Thus the serum subsides. The red particles of the blood and dissolution the serum coagulable lymph in the blood vessels, are formed by microscopic Separations which takes place after bleeding. It is frequently acquainted with these terms, as nothing more the want of medical knowledge than

Of Decomposition

Decomposition consists in the separation of the constituent parts of bodies. It is performed by Putrefaction Crystallization and Evaporation.

Of Precipitation.

Precipitation is when to a solution of a body in any menstruum another substance is added which has a greater attraction for either the menstruum or the substance than the

sions for each other, with which I will combine. The
first body will be separated. The body here added is called the
Precipitant. There are four different ways of Precipitation.
1 of the dissolved body alone. i.e. when the precipitant comes
with the menstruum the dissolved body falls to the bottom;
as if the solution of marble in the nitrick acid are added
some alkaline salt, it will immediately unite with the
acid, while the marble falls to the bottom in the form
powder. 2. of the dissolved body & precipitant. i.e. when
the precipitant is attracted more strongly by the solvent
than by the menstruum. Together with it falls to the bottom.
Thus by adding to a solution of marble in the Nitrous
acid a little vitriolic acid the marble

f. v.

Notes taken from a Course of

Lectures

on the Practice of Physic

delivered by Benjamin Rush M.D.

Professor of Chemistry and Practice

of Physic in the

University of Pensylvania

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That branch, which treats of the cause & cure of diseases, is called the Practice of Physic. A disease is that state of the body, in which the functions are performed with difficulty, or irregularity. Diseases are varied in different countries, and in different ages.

Causes are divided into remote, predisposing, occasional, and proximate. To illustrate this, Cold or Contagion may be the remote cause of Pleurisy; Plethora a predisposing cause of Hæmoptoe, while violent exercise may be the occasional. Spasm is the proximate cause of Pleurisy. The remote cause of Gout is intemperance; the predisposing an hereditary disposition; the occasional may be either taking an extraordinary quantity of wine, or a strain in the ankle, & its proximate spasm.

A Symptom is, an apparent deviation from health & obvious to our senses; it must be apparent, or it cannot be a symptom.

Symptoms are divided into three sorts; 1st Symptomata morbi; 2d Symptomata causæ morbi 3d Symptomata Symptomatum. Thus in Pleurisy, for example, the pain, fever, & cough are the true symptomata morbi; but if Cory or Angina attend, it does not belong to

to

to the Proximate, and Remote causes, and Nature of the Symptoma causa morbi, the difficulty of breathing is a Symptoma Symptomatis. Diagnostic Signs. These Symptoms, when taken collectively, constitute the distinction of a disease, are called Diagnostic Signs.

Prognostic is a declaration of the issue of a disease taken from the state & degree of the Symptoms.

In acute diseases, the Prognostic should always be reserved & evasive. It is always difficult in Chronic diseases. Physicians should speak with caution in acute diseases; in chronic, with more certainty & boldness.

The Diagnostic in acute diseases is drawn 1st from the Pulse 2d the urine, 3d the excreta, 4th the countenance, & 6th the decubitus. In chronic diseases they should be drawn from the Animal functions, and chiefly from the Appetite. But all these difficulties, even the Pulse is not to be depended on in all cases. There is not a Symptom declared to be data by Hippocrates & Galenus from which they can not sometimes deceive; & few of those which are called

Salutis

salutary, after the appearance of which I have not seen
them die. And in chronic diseases the inventor can
avoid a Prognostic, the latter. The friends of a patient will
sometimes to know your opinion; the answer I commonly
make is, I have seen persons who appeared to be much
worse recover, & some, who seemed not so ill, have died.
An old woman has sometimes slipped in a cupid disease,
that Physicians have pronounced incurable, to the
disgrace of Physic & Professors. Never then give a patient
up, never pronounce him incurable, it is equal to pronou
uncing the sentence of death on him. We should always
endeavour to keep hope in mind, however small that hope
may be; for we do not know all the resources of nature,
nor what powers she still may have. A patient after recov
ering after the Physician has pronounced him incurable,
ought to command the cognizance of the Criminal
Magistrate, & the Physician declared incapacitated for
his business, & excluded from practice. We should smooth
the path of death by every means in our power; for it is
natural to have an aversion to dying.

Diseases are either Idiopathic or Symptomatic.
The Idiopathic are sub divided into Natural & Artificial.

6. The natural are chiefly Fevers. In Sydenham's time, out of 100000 Patients who died 66000 were affected with fevers; but not more than 1000 of 100'000 die of Fevers, at present, as the bills of mortality testify. Fevers, Old age, Casualties from poisons & accidents seemed to be the only outlets of life. Artificial diseases seem to be the offspring of Civilization, even the learned professions, & some mechanical employments, as well as Intemperance, are subject to the Artificial diseases -

Indications of cure are founded on a knowledge of the Proximate Cause, necessarily thus in curing a [illegible] the first thing to be done is to remove the spasm. Remedies are the means employed for the removal of diseases.

What are the powers of Nature in the cure of diseases? By Nature is understood in the present case, Physical [illegible] all performed by the same powers that govern Electricity, Gravity, or Magnetism. A ship, when thrown on her side, recovers her former situation by virtue

her particular structure; but if the ship take fire & is consumed, the fault certainly cannot be laid on the builder. In like manner the Author of Nature has employed, in our bodies certain powers, suited to obviate all the natural diseases; but when the body is attacked by the artificial, it resembles an Indian fighting against a man equipped with fire arms =

History of the operations of Nature.

1st There are cases in which Nature is still successful, as in Fevers, for here she diminishes our appetites, & makes us call for cold air & cold water. In Hemorrhages she forms a coagulum.

2 There are cases, in which nature is deficient in her operations, as in Putrid & nervous Fevers.

3 Sometimes the pain is overproportioned to the danger, as in Odontalgia Phlan.

4 Silent, as in chronic Gout, Epilepsy, Cancer, Mania Venereal disease & Tetanus.

What does nature do in these cases? Nothing.

5 She does mischief as in the dropsy & consumption

8. Consumption: the more Plethora on the brain drives the Melancholic to solitude. There are cases in which the sense us pain to warn us of danger and inconveniences, as stone in the bladder & Chronic Inflammation, as described by Dr. Hu[nter]. When the pain is not proportioned to the danger as in the Tetanus & Hydrocephalus. A Lunatic once well plead against the sequestration of his e[state] because he had sometimes lived in and pretends to clear himself of their charges. But this is further confirmed by desiring the remedies, the effect seem continued, to renew, assist, restrain & act her operations. Some truths, like strong liquor require a strong head to digest them; of this kind is the last advanced.

Diseases are divided by different authors in different manners. The Nosologists, Sauvages, Vogel, & Linnaeus have been compiled by Dr. Cullen. From committing Cullen's definitions to memory as much advantage will be derived, as getting Greman rules in learning Latin, or getting some of the

the first Propositions of Euclid in learning the Mathematics. Let me advise you never to prescribe until you have investigated the disease, & fixed to its proper class, order, genus, & species. In all diseases hardly [illegible] Fevers the Pulse is considered as a good Criterion by which we may judge, what observations & directions in the manner of effecting it. 1st The different positions already influence the Pulse; it is fullest when standing, slower when sitting, still slower when lying, slowest when lying on the back; a moderate meal [illegible] of fish, walking &c: will quicken the Pulse. Different positions of the Head & arm influence the Pulse. The Head should be in a position best to feel the Pulse to the greatest advantage. We may also method to set down by the side of the patient to feel the pulse for our sensations are influenced by the positions of our bodies, for the same reason that a sick person is cleared. If we feel the pulse standing, every subsequent time we should also stand, if sitting, then the next time we should feel it sitting: We cannot gratify two senses at once. I heard a French man say, while at dinner to some person who was talking very loud, don't talk so loud I cannot taste my victuals. There is some

Loss

10. vein in this, for if we wish to apply all our sensations stri
one subject, all of them should be concentered on it. Shutting
our eyes is a good method of abstracting our attention f
external objects, when we feel the pulse.

2d The pulse should be felt in both wrists, unless the pati
lyes on his back. It is a good way to run your hand int
bed & feel it there, if convenient, & prevent all motion
in his body & limbs, if possible: This will not be deem
ment, when we consider that our own reputation & the
of the patient, depend upon the greatest accuracy in the m
The artery sometimes takes a preternatural course; that is in
of the common direction, it takes one between the back of th
thumb & the fore finger across the wrist.—

3d Passions of the mind influence the pulse very consider
chiefly with respect to its velocity, & not much, as to its hard
Hence we should not approach to a patients bed immed
for the first appearance of a Physician influences the passi
of the patient's mind very considerably; he is anxious to kn
what is disease is, what his danger, how long he is to be conf
He is influenced by the apprehension of bleeding. A wo
who had never been bled, was affected with an Hepatitis;
after

calling with a view of drawing some blood, her countenance became pale, she felt violently agitated, & scarcely a trace of a vein could be seen. The bleeding could not be performed, & she died of an Imposthume in her Liver.

Pyrexiæ. See Cullen's Diff—

Order I.st Febres.

In considering of Fevers the first enquiry to be made is concerning the Proximate Cause. For this I refer you to D.r Cullen, who has divided the Fit into three stages viz. the Cold, the Hot, & the Sweating—

Spasm & Reaction constitute the Proximate Cause of Fever. The cold & spasm are of a stimulating nature. When remarkable debility prevails, the Nervous or Putrid Fever called Typhus is the consequence; but when there is a great reaction, the Fever is of a very opposite nature, viz the Inflammatory or Synocha.

Fevers affect the arterys, nerves, & fluids, the arteries as stimulants, the nerves as sedatives, & the fluids as septics— In inflammation alone the arteries are affected. There are inflammations which affect the nervous system only; & there are those which affect the fluids & nerves

both

R

both as in Typhus, & there are those which affect both, as in the Synochus, of Cullen. These will be continued when there will be great debility or obstinate spasm. There is no continued fever, in which one of these does not obtain. The intermediate degree constitutes the

Intermittent Fever.

The Remote Causes of Fever are chiefly Marsh, and Human Effluvia; these are causes to be enumerated hereafter.

Marsh Effluvia, hence &c. the genuine production of Miasmata. Human Effluvia are called contagious which there are various kinds.

1st There are certain species of Contagions peculiar to the species.

2d There are Contagions that are peculiar to domiciliated Animals, and do not affect men, or other animals. Those which affect Cows do not affect horses. Most of those which affect brutes are of the Catarrhous Kind. Also peculiar to horses, in this country, & commonly known by the Blind Staggers, supposed to be only an highth of Catarrh; for some men are affected with staggering

and even comes in very violent Attacks of catarrh.

3d. It is peculiar to certain descriptions of men, the Negroes of the West Indies were exempted from the Yellow Fever that raged there. In Virginia an Epidemic appeared, which affected the Negroes only. This fact extends to the Indians and white people at Nantuckett & Martha's vineyard, where some Indians were ———

Epidemics sometimes made their appearance amongst them which did not affect the white; & the white inhabitants were sometimes seized with Epidemics, & the Indians escaped

4th. Peculiar to certain ages of the human species, Catarrhs which affect children only: sometimes have the same effect on grown persons only. There Epidemics which affect Children only of particular ages, & some which affect all.

5th. Miasmata are produced only by heat & moisture. When ponds or rivers are perfectly full of water, no miasma from exhalation can take place. There is no sickness during the overflowing of the river Nile in Egypt, nor will moisture produce Epidemics in Pennsylvania. In the marshes are overflowed in April & September, no diseases are produced.

14 6th Marsh Miasmata exist Their effects is to congeal
falling down trees, damming up water, Cleaning
a country too as to make it sickly. Cultivating a
country too as to make it unhealthy. Hence in
Pensylvania intermittent fevers is cause, & in
of the eastern states, there is scarce an intermittent fe
found.

How are the effects of Miasmata to be avoi
1st They are destroyed by fire, whether the contagious matte
little animalcula or not, is not well determined. Farme
should examine the crust of their fields to burn in Septe
& should chuse a time when the wind is directly on th
This also within doors tend to prevent them miasma
from taking effect.

2d By surrounding the house with trees, which imbibe
unwholesom air, but should not be planted too near th
trees to each other.

3d Sulphur & Gun-powder both contribute powerfu
by mixture to destroy the effects of miasmata =
A Vinegar by mixture combines to correct this m
air. Doctr Priestly recommends burning nitrous acid
common salt, which the vitriolic acid decomposes Nitrous

acid flies off in vapours.

5th Fresh air above all is useful, since Epidemics are produced much less in summer, than in winter, because you can keep your doors & windows open, & have a free communication with the external air.

Fevers from contagion & miasmata are less frequent than formerly. To what is this owing? 1st To the increase of agriculture. 2d To the increase of horticulture. Hence a greater quantity of vegetables are used than formerly. Too great a proportion of animal food contributes to the production of Putrid Fevers. 3d More cleanliness regard being now paid to it that was not formerly, particularly in goals. (Mr Howard says 1, that the Goal Fever has been never known in any part of the world, but in the British dominions, owing to more animal food being consumed there, than in any part of the world: 2d White washing the walls contributes very much to prevent the generation & production of the goal fever. Hence it is a query, whether papered rooms be wholesome? 3d The use of sugar. Heberden takes notice that the plague never appeared where there was much

 much sugar consumed. 4th there more Small liquor both of which are antiseptic, & tend to preserve the body against Putrid Fevers. 5th more knowledge & care in the methods of preserving meats. The fatter the meat the more wholesome. Animals are now eaten fatter than formerly, & also more attention is paid to the manner of salting it. Salted meat is an Antiseptic hence children in the country are not subject to the diseases that are prevalent in cities. It is remarked to the southward, that those who eat most salted meat are least subject to Fevers, especially if they take a quantity of vegetables with their meat.

While Epidemic Fevers have diminished in Europe they have increased in Pennsylvania, owing to the increase of Mill ponds &c having more ground in them is cultivated. The unequal quantity of rain there some years past has been a cause also of epidemic diseases. There are two enemies to miasmata & contagion viz. frost & heavy rains. Besides miasmata & contagion, cold & fear are remote causes of fever they cooperate with other causes. Cold is

prevent the propagation of contagion. A Person if
he is warm, may go into a room without danger of con-
tagion, but if he goes into it when cold, the cold facilitates
him. He is of consequence more liable to be affected. The
causes of Fevers are adventitious, viz. to Ignorance
Inattention, as the life of a Soldier in itself is a very healthy
one.

Prognosis. When we are to speak of critical
days. We must consider first the Intermittent Fever, it is the
natural type of continued fevers. The critical days are
the 3d. 5th. 7th. 9th. 11th. Here the Intermittent Type ends. In
the Quotan Type, there is greater debility, now the days
change to the Quadran Period. 11th. 17th. 21st. &c.
Warm sweats relieve to diverse these days, on which we
give the most active & powerful remedies. Hence
Blisters & Emetics ought to be given on these days.
Bark Decoct ought to be given in greater quantity on
these days & Watery. If Bark grain half an hour
before the accession of the fit of an Intermittent, will keep
more quiet than if given the day before. Dr. Cullen
has given for the sign of death or recovery, in the mild

animal.

(Animal, or natural functions of the body. — The Prognosis is drawn; 1st from the decubitus. There is much to be learned from the posture of the patient, the nearer he lies to his natural position the better. If he lies on his side ~~there~~, there is not so much danger; if he has been on his back for some time, & is found on his side, we may pronounce him better. Lying on the back is bad, with the mouth open is worse; & with the legs ... is still worse.

2d. — From the eye a great deal may be learned; the nearer it is to the natural state the better. An involuntary flow of tears is bad; a glassy appearance is also a bad sign. This glassy appearance is owing to the patient's winking. These are bad but not always fatal signs. Faded vision is a bad sign; as also is picking at the bed clothes. Sleeping with the eyes open, & turning up the whites of them is a very alarming symptom.

3d. From the countenance a good deal may be learned. It is a bad sign for a man to look suddenly old, facies ... It is a bad sign for one to resemble his ancestors in disease. Their resembling their ancestors arises from

that, that the tones of families are much alike, when the countenance fades, the shape of the tones becomes more conspicuous.

4th The tongue affords a good mark to judge from. A white tongue is a sign of fever; a dark one is a worse sign; a dry tongue still worse; & pitched dry tongue worst of all. The tongue may become dry from sleeping with the mouth open, hence you should always have this in your memory, when you examine the state of the tongue. The diagnosis generally begins on the middle of the tongue, and is an approaching crisis. The tongue grows moist first round the edges, & that moisture gradually approaches the middle. It is of consequence to instruct the tongue. Circumstance will require to the dark colour of the tongue as that will continue many days after a crisis, especially in Bilious Fevers. Some aliments have the property of imparting this colour to the tongue. —

5th Sweats. They seldom relieve, unless they are universal over the whole body. They seldom relieve unless they continue 24 hours. Hoffman mentions a particular fever, in which death preceded by sweats, that were

 were universal, & continued 24 & sometimes 36 hours;
succeeded.

6th Urine. This is so various in its consistence and colour, and so easily altered by various circumstances, Physicians should be cautious how they form their Prog. from it. Turbid urine is supposed to indicate a crisis, urine more certainly, & lastly the sediment is thought the most certain sign of all. Pale urine is supposed to indicate the presence of Typhus; red urine the Inflam-matory & putrid disorders: however little is to be learnt from the urine, because there are many symptoms more unequivocal & certain –

7th The Bowels have been attended to in order to form a Prognosis but it is of little consequence to know the facts, as you may get all the necessary information from the patient. Faeces bene colorata indicate health. Green stools indicate an acid, dark brown the pre-dominancy of bile. Stools formed into little balls are signs of some irritation. A quick discharge, as soon as inflammation takes place in fever, is a sign of de-bility, & commonly a fatal symptom. Involuntary stools indicate great weakness in fevers also.

A discharge of wind, accompanied with decrepitus, is a favourable sign, particularly after an involuntary discharge of faeces. Deafness is a favourable sign in fever.

8th An abscess in any part of the body is a favourable sign.

9th Blisters after healing up, suddenly break out & looking red is a favourable symptom, a proof that suppuration has taken place.

10th The voice, the more it departs from the natural tone the worse; when it is natural, depend upon it not much danger is to be apprehended. When patients speak with a drawl it is favourable.

11th Screatus or Hawking & spitting is a favourable symptom it occurs in a remarkable degree in the small pox.

12th The pulse affords the best Prognosis, a strong pulse depends on the strength of the contraction of the heart, a full one on the large quantity of blood thrown out, a small one on a small quantity thrown into the arteries. A frequent pulse, on the frequent contractions of the heart a slow one on the fewness of them. The hard, soft, redoubling, jerking pulse depends upon the motion of the arteries also.

 a quick one on the irritability of the arteries, when th
is 140 times in a minute; it is thought a sign of death.

There is a peculiar softness, roundness & fulness of the p
that indicates an approaching crisis, which old p
know as well as the hours on the face of a clock. It ma
possible to graduate the pulse, make its highest degree
irritation 10, & when you have reduced it, a comple
solution of the disease will happen.

13th The Intellects intimate the state of the disea
The state of the temper is worth attention, even the Nu
will tell you that a patient is recovering, if he becomes
irascible. The return of convulsions late in a fev
a deadly symptom. The return of taste after it ha
been absent, is a favourable sign, such as for Coffee, th
Smell for snuff.

The return of appetite for animal food, &
return of sleep afford an agreeable Prognosis. N
is no one of all these symptoms infallible, the
is generally succeeded by an abatement of the sympto
on the critical day, preceding that in which it is to ter
-minate. Some fevers seem away as it were, without a

my cases. Hinarinshuma says that Epidemics often terminate without any sensible evacuation. —

Indications of cure in Fevers are 1st to moderate the violence of reaction. 2d remove the cause of debility. 3d obviate the tendency to putrefaction. The 1st will begin first with Inflammatory Fevers. This might then in case of Synocha, in which a Congestion does not take place. In Intermittents the first Genus is the Tertian divided into Vera in which seem an Intermission & Remission. Persons in southern climates are generally attacked with Intermittent Fevers. The longer the cold fit continues. The more certain you may expect an Intermittent. Then fevers which make their appearance without a chill are generally continued; & the circumstance by which you may know Intermittent Fevers, is seeking of chills; but this like is not the cause of the disease. A Tertian comes ante meridiem, Tertian ante Meridiem, & these circumstances together, you will not be at a loss to distinguish between them.

In treating on Intermittent two things are to be considered. 1st. 1st to conduct the Paroxysm (1) 2d Paroxysm over & 2d the periodical returns

 2^d^ to prevent its recurrence. Paroxysms of inter-
tents are accompanied with great pains in the
bones of the extremities, back, & head. The puking
cold chills are very disagreeable; even death is
on by Apoplexy, sometimes by vomiting, & some
by the violence of the chilly fit, which admits of
Reaction. When it is painful; & there is probability
of its being fatal, 'tis of consequence to endeavour to
cure it as soon as possible —

Remedies are, Liquid Laudanum, f
allaying the violence of a Paroxysm of the interm
Dr. Bolli in his diseases of St. Lucia recommen
this practice. The laudanum should be given in
large a quantity as in a fit of the Cholic. Where
it is safe to give wine, you may with propriety gi
laudanum. In intermittent fevers wine is nec
for here there is no congestion. Sea puking gi
Pepper Mint tea, or hot punch, which last is to be
will be of service, in taking which, the patient
should be in bed & kept warm. To prevent its return

return, the Indications are 1. To strengthen the tone of the system by riding just before the accession of the fit, which often prevents its coming on tho' seldom cures it radically. 2d. Cold Bath during the interim of fits; it acts as a tonic, or by exciting horror. A man set his chimney on fire accidentally, just before a fit was expected, the horror occasioned by this, cured him notwithstanding his disease had resisted all the usual remedies. 3d. Hot drinks have sometimes prevented their return, taken one or two hours before the accession. The country people place a patient before a fire, & make him drink hot toddy; 'tis an unsafe remedy, & ought never to be practiced. 4. Vomits. It is usually begun the cure by vomits, but the practice is carried too far. If the patient vomits during the cold fit, when the disease happens in the spring, emetics are unnecessary, but there are other cases in which vomiting may be improper, viz 1st. Antipathy, the very dread of taking one has sometimes occasioned convulsions. 2d. Pregnant women are always averse to taking vomits. Lenient purgatives here to be prefered. 3d. Patients subject to

26. to Hæmoptoe, or Hæmatemesis ought not to take Emetics; in these cases lenient purges oug[ht] also to be substituted in their room. 4th. Opium gr ii. or a plentiful dose of laudanum given two times before the accession of the fit, prevents it, w[hen] it acts as a stimulant only. 6th. Astringents, h[ave] has been tried and with advantage, in the different of blue, white, & green; gr i. of blue vitriol given or four times a day, sometimes cures an Intermitte[nt]. ʒj ss. Allum has produced the same effect. These remed[ies] Simply suspend the fit. but do not eradicate the cause. 7 Bitters, Dogwood Poplar bark, Centaury, Chamomile flowers, & Gentian root have been g[iven] with success. The Columbo root has also been use[d] with advantage too in this disease.

8. Aromatics, as a nutmeg roasted in an Onion Made use of with a pint of vinegar, and drun[k] an hour or two before the coming on of the fit these also at times are ineffectual. 9th. A mixture of astringency or bitterness together as in the [bark]

Bark, which is the only remedy that is generally infallible. The Red Bark owes its superior virtue to its greater astringency.

10th. A remedy prepared from a spider, viz. take a common spider, put him in a piece of bread which is to be toasted & made into a pill. The spider is poisonous & may act as a sedative & then as a stimulant.

11th. Arsenic has also been used; but it is a dangerous remedy, & ought never to be tried, it vomits violently, & causes the hair to fall off those who use it.

With respect to the bark's use, it should be given during the Intermission & as near the accession as possible ℥i. ℥iss or ℥ii given just before the accession will have more effect than ℥ii at another time. The best way is to give it in substance. In infusions you may give it in nervous continued fevers; in the convalescent state of fevers the tincture may be given. After the first fits are broken, a dose or two of bark should be given in a day for some time, & as relapses happen either the 8th or 15 day we should give more on those days than usual.

Intermittents

28. Intermittents may be complicated with other diseases, as periodical pains in different parts of the body, or even when they are not periodical, or when they are of a continued form. These pains may be known to be intermittent by keeping our eye strictly on the [illegible] of the year, in which they occur; when these pains [are] periodical, give the Bark, & when they are continued blister, bleed &c. in order to bring it to a periodical type, & then administer the Bark —

There are Intermittents which bark will [not] cure; this Dr. Saunders says is owing to our using an inferior kind of bark, but even the red bark will not cure them, & is even more injurious than the common. In such cases bleeding is very necessary, & should be used in all those which continue after the cold weather has commenced. The blood is sizy, & it is necessary to bleed two or three times in patients. The other remedy when the bark fails is blistering which is often efficacious, which succeeds best when there is no Inflammatory Diathesis.

less in cases Relieves are applied, with
Increase upon bleeding. In most cases where
bleeding is of advantage a Topical Congestion takes
place; how shall we reconcile this with Dr Cullen's
Theory of intermittents? by supposing there are two
forms of Inflammatory Diathesis the one occurring
when there is Low Vital Action, called Indirect
Inflammatory Diathesis —

Continued Fevers. Typhus Synochus

Synocha sedo. It is most probable that no Inflam
matory Fever ever exists without Topical Affection;
in those forms that appear to have least of this local
Affection, after sometime a slight Cough, or a Pain in
left or the right side, indicating some slight con
gestion in the Liver. Inflammatory Diathesis
have appeared in Europe, especially in London, owing
to the attention to their manner of living. In this
country Synochas or Inflammatory Fevers are very
frequent — The Indications of cure are to
moderate

30. moderate the violence of Reaction, by moderating
their impressions made on our Bodies; its cause
heat must be avoided. The heat of the room must
be diminished, in proportion as that of the body is in
creased. The temperature should be below 60°. If
in order that heat must be prevented by injoyning pa
rest, & an intermission of all kind of exercise. The
may be conquer & serve & to yield to it, while Chron
diseases are overcome by resisting them with all
might. There are few Incipient Fevers that are
off by exercise, or drinking hot inflammatory
drinks. Exercise of the mind must be avoided,
Company should be excluded; all learning positive
and books avoided. The conversation of confiden
tial friends exercising the mind is hurtful by bring
in before our subjects, such as talking of sick people
the deaths in the neighbourhood. The tasting in
Aliment must be avoided; nature hunger
this by taking away all appetite. Particula
irritations are to be avoided, as from thirst, what

which should be deviated by any drinks, that are not stimulant; water should be the basis of all these drinks ~~that are not stimulant~~ other substances are added to make them palatable, & thus induce the patient to drink more freely. Herb teas are proper such as those made of balm with a very little sage, and sweet Marjoram, thyme &c. Ptisans, as barley water & fig tea with a little lime juice added to them &c are very proper. When a Diarrhoea occurs, rice water with loaf sugar is more useful. The summer fruits cut fine & boiling water poured on them, afterwards sweetened make most agreeable drinks. Peaches, strawberries, cherries, apples &c are all proper, & may be used at all seasons of the year, as the dried are equally proper with those which are not dried. Crudities are to be removed from the stomach. Inflammatory Fevers seldom begin from the sickness of a stomach, but when it does occur a gentle Emetic will be of service. Costiveness is a very frequent symptom of inflammatory fevers, hence it is of great consequence to evacuate the bowels as the faeces are stimulant.

and

and a source of Tension; Lenient purges should
used as Salts, Castor oil, Manna, & laxative Cl
since the use of mercury in Hepatic & other inflamm
diseases, I have opened the bowels with a pile calom
or two, with great advantage, it is a speedy, certain
& plentiful evacuant. The tendency to acrimony
the fluids must be prevented by <u>Drinks</u>. The em
ployment of certain Sedatives as cold tea, the use of
is evinced in the small pox & other eruptive fevers,
attended with success. Cold may be used in all cases
when there is not an affection of the Lungs —

Let us next consider the utility of refrigerants,
Acids of all kinds are proper in this intention, but the
salts are more in general use. Nitre has been
employed more than the others; but when there is
a tendency to Bilious Complaints, it will not lie
* on the stomach. Metallic Salts are but little us
Another method is to diminish the Tone & tension
of the Arterial system by <u>Blood Letting</u> —

General Observations on Arterial Tension

Tension

Tension is of two kinds Arterial & Nervous, they influence each other, but sometimes do occur alone. The tension of the Arterial system depends upon many circumstances 1st On Original Stamina 2d On great bracing powers being applied, such as Cold & Exercise. 3d On the quantity of Aliment taken into the body 4th On the quality of the Aliment the more Animal food taken into the body, the more it is disposed to arterious tension. 5th On the state of the Alimentary canal. This canal being filled with feces increases arterial tension, but this acts more on the nervous system. Perhaps the influence of the Alimentary canal on the Arterial system depends on the quantity of feces it contains, acting as a ferment, & contributing to keep up arterial tension. 6th On the state of the Uterus, which is influenced by two circumstances; first by Pregnancy; secondly by Menstruation. - Women are always more disposed to Inflammatory diseases during Pregnancy, and also during Menstruation - during their courses

 causes they are more liable to take cold. Bleeding applied in the present disease is proper —

First, in all ages, there is generally allowed it is equally proper in the old & in the young as in the middle. Children of three months old have been bled three or four times in Pleurisies the blood being constantly sizy. In some cases children of three weeks old have bled with advantage; secondly at all times when an inflammatory Diathesis occurs, no situation of the system should forbid it. Physicians have generally thought it improper during menstruation, but so far from this being an objection, you should bleed more copiously. Why? An accidental obstruction from cold is to be altogether neglected. The disease to be treated as an Inflammatory Fever, & by this treatment you will frequently find menstruation return, for which you will get greater credit, & if they do not, you have nothing to apprehend. Many differ very much about the part from which the blood is to be drawn. It should not be ever taken from a woman from the foot. — For —

1.st It seldom flows pleno vena. 2.d You are obliged to

reduce the Patients by making them sick, & thereby
subject them to cold. 3.. you bleed in water, & thereby examine
ascertain the quantity of blood drawn. 4th You cannot
discover the appearance of the blood. 5th It is not safe on account
of the tendons, which run there in great numbers. For
these reasons if proper bleeding in the arm, can as well as there
is possible. For the more suddenly the tension is taken from
the system the better. A Patient sometimes faints suddenly
from opening an abscess by a large incision, or from tapping
for ascites suddenly. from the sudden diminution of tension
from the pressure from which Atonia is communicated
to the whole system. In like manner by taking off the blood
in as little time as possible, you do most service. Two lbs
taken away in two hours, is not of as much service as lbs
taken away suddenly; because the Arteries, when the blood is
drawn off slowly, have time to contract; you can also observe
the appearance of the blood better, when drawn off quick.
A recumbent posture of the body should be preserved. Some
are a bad practice to force patients to rise from bed when
they are to be bled. And if you can bleed them lying on

36. on their backs, it is to be preferred. For you prevent the muscles to act. Tis of consequence to inspect the blood, as it is influenced by various circumstances. Always bleed in a bowl. The nearer the Coagulable Lymph to the shape of a   & the more it floats in the serum, the greater is the Inflammatory Diathesis. Yellow serum is also a mark of inflammatory fever, tho' occurs also in the putrid. Hence two extremes meet in a point. The employment of blood-letting requires the You will find many Fevers where you will be m... about the propriety of bleeding. You will determine

1st By the nature of the prevailing Epidemic.

2d By the nature of the remote causes, whether Contag or Miasmata. It is common to forbid bleeding, when the presumption is that the disease is brought on by Contagion. In summer this is a good rule, in winter it is by no means to be adhered to as the inflammatory diathesis at this season, is so powerful, as to overcome the Septic tendency of the contagion. 3d the season & climate ...

such the diseases occurs, is of consequence sought to be
attended to. The Climate in which a more constitution
has been formed is still worth attending to. A London
will not bear bleeding above once, because their fevers
tend so speedily to Typhus. But an Jamaican in London
when seized with a Pleurisy for instance should according
to the London method, will certainly end in Empyema
1st. The degree of Phlogistic Diathesis —
2d. The period of the Disease. —

Emetics in fevers are used for two purposes;
1st. to discharge the contents of the Stomach, 2d as a Diaphoretic
from a great sympathy between the Stomach & skin over
the whole body. The most common emetics in fevers is
Antimony —

Of all the preparations of Antimony
Vinum Emeticum is the best.

To make Antimonial Wine.

℞ Tart: Emet: gr ii Vin: Xeres ℥ i. Dissolve
making Emetic Wine is the best, as it renders the
dose certain. Gut: 60 contain ℳ gr of Tart: Emet: The

The evacuation of the system is also to be taken down by excalings caused by small doses of emetics. There is also other methods used for this purpose, such as Blisters, as Antispasmodics & Evacuants, viz. Evacuants as stimulents -

The manner the Blisters are applied to the system by inflammation the latter sometimes terminates for when they act as Antispasmodics. There is a sympathy occasioned by continuation of membranes, the irritation felt on the glans penis in affections of the bladder, what felt in the fauces, when worms are in the stomach. In fever inflammatory forms, these act as Antispasmodics, if there be no topical inflammation when there is the case, as in a Pleurisy, they may do good in evacuants also. In catalitic habits, if too great pain is occasioned by their application they must be removed. It is common practice to let blisters lye till there be a discharge, such is till the blisters rise, or else you may them as stimulents. Pieces of muslin laid when the first blisters are said to prevent strangury &c.

They do certainly prevent the Slight adhering to
blister, which is sometimes of consequence to prevent.
Painting from 16. ii to 16. iii Barley water, will mate-
rially prevent the Strangury. if the Patient begins to
drink it as soon as the Blister is applied. If this has
neglected, & the strangury has come on, it may fre-
quently be removed by drinking barley water, but
sometimes a little Laudanum is necessary. Cataplas-
mas may be applied when we wish to draw Irritate
the blisters, but should not be applied to Purulent habits
They should not be used when there is a septic tendency
Cancers. they quickly putrify, & may increase the comp-
laint, or at least they remain the room very offensive
The best application is one ointment prepared of wax &
oil; the Skin should not be taken off. when wax & oil can
not be procured, a rag dipped in fresh butter, or melted mutton
suet will answer as well.

Some further observations on bleeding —

1st The degree of Phlogistic Diathesis, the period of the disease
the manner of bleeding, also the patients habit of bleeding
and the appearance of the blood drawn, should all be taken into

 into consideration — (2.d Warm bathing should be used for taking off tension. This was a famous remedy among the antients: but if any Septic tendency prevails, it will bring on, unexpectedly, great weakness. It is more over troublesome in most cases, notwithstanding Dr. Gilchrists Treatise, it is unsuccessful & sometimes hurtful

Typhus, mitior, gravior; and Icterodes, or Yellow Fever of the West-Indies —

These include all cases of Nervous & putrid fevers that exist. Huxam's slow. Nervous Fever is an accurate description of Typhus Mitior. See Cullen's Def.n

The cure of Typhus mitior consists in obviating the effects of debility, & in removing the causes of it. Effects of debility are obviated; 1.st by increasing the action of the heart &c. by Tonics. Cold which is a powerful Tonic acts by its sensible qualities, & by the pure air you derive by exposing the patient to it. I have no experience of the effects of cold as a tonic in this disease.

Tonics are either vegetables or fossile. The vegetable is the Cortex Peruv: which is the best Tonic; in the Typhus mitior

may be given with safety at the 4th day. There is common
only a little Inflammatory Diathesis in the mucous Tissue
which may render the exhibition of the bark improper, till
it takes on the quotan Type. The Inflammatory Diathesis is
to be the Criterion, for we sometimes give the bark before the
4th day, & sometimes not till after.-- In the Typhus Gravior
you may begin the use of it immediately after usual
Evacuations, & not only by the mouth, but by injection.
Vomits, Cathartics, Fomentations or Cataplasms, which are some
times as large as to envelope the whole body. The stomach
will often bear bark when nothing else will. Camomile &
Vol. Stimulants, as wine and Aromatics, all these
appear to be useful. Volatile Salts, as stimulant may be
given in the Typhus Gravior, from 5 to 10 gr. It may be
given if necessary at any time of the day. In all cases
of Inflammatory Diathesis Opium may be improper by
its Stimulus, except in affections of the lungs, where the
irritation occasioned by the Opium is not so great, as
that would be by coughing. Wine must be given in
much greater quantity, than is commonly the case. It
must be governed by the degree of the disease & the state

 state of the pulse. It is an Antiseptic as well as a Stimula[nt]
From one to four pints may be given in a day with
safety. It is almost impossible to make a patient dru[nk]
under a nervous fever, by any quantity of wine
you can give. Suppose the standard of health to [be]
20, at which time a pint of wine will intoxicate,
then it sinks to 10, it will take a quart, & so on acc-
ording to the degree of debility, & to people who hav[e]
been in the habit of drinking wine, we double or tre[ble]
the quantity. It may be given unmixed. Port win[e]
is good, but Madeira is the best of all wines fo[r]
two reasons; 1st because it possesses more Antiseptic
virtues & 2nd because it is not decomposed by the [heat]
of the stomach. I can easily conceive that Madeira [is]
is thrown out unchanged by perspiration. Hot bath[s]
of the feet, & Cataplasms compound of bread and milk
with raw Garlic beaten up in it, stimulate gently & slightly
& inflame the parts. A Patient had two such poultices
applied while he was delirious & in the succeeding morn[ing]
he was sensible & tasted garlic, tho he knew not that im[...]

ything had been applied the night before a
ccess of its entering the circulation. Flour of mustard
is a more speedy stimulant, but in Typhus mitior
seldom necessary. In Apoplexy Mustard is to be pre
ferred on acc.t of its quicker stimulant. Live pidgeons cut
in half are sometimes applied to the feet, but this is a
cruel and sometimes a dangerous remedy. Ingemuel &
vinegar are also used by the old women, but is not so
effectual as Garlic or mustard. The nervous fevers are
sometimes complicated with the putrid, & both these
sometimes with Inflammatory fevers. Here we must
use our judgement and not be governed by name
merely. In Typhus gravior, the intentions of cure are,
to obviate the tendency of the fluids to putrefaction;
this is done, by avoiding the application of putrid matter,
by removing the patient from putrid air, when
that cannot be done the air must be corrected by
keeping the windows and doors open. Hence putrid
fevers spread more in winter than in summer
because the windows & doors cannot be kept open.

Formo

Barns make the best hospitals in the summer, especially the most exposed to the south. When a barn cannot be procured the patient should be carried out and placed under a tree. The air may be corrected by certain exhalations, as from branches of trees cut & strewn upon the floor. The willow tree exhales the greatest quantity of this pure air. Dr. Priestley obtained an acid, that could correct the pure air, by pouring Vitriolic Acid on common salt; vinegar has the same effect when poured on a hot brick or stone. The accumulation of the patients own effluvia should be avoided by changing his bed-cloaths & body-linen; his tongue should be cleaned as frequently as possible, & all excrementitious matter removed very carefully. While Doct. Pringle was Physician General to the British Army, he was on board one of the Transports, & in the hold he found many sick, amongst whom Bedson was one who appeared to be dead. The Doct. him to

be taken to shore, shoved immediately, he was accordingly thrown into the boat and four men rowed him to land. Crossing the water a fresh wind blew off the land directly into Thomsons face, he instantly began to mutter. Thus soon they reached the shore, he was able to speak, instead thereof of carrying him, they placed him under a tree in the cool air, the consequence of this was, that in a short time he recovered. This is a most remarkable instance of the efficacy of cool air. The stomach & intestines must be kept clean by vomits & purges. In the beginning of Agues of 20, putrid diseases vomits will be necessary, and in the progress where there is a constant sickness of the stomach accompanied by a full pulse. When these are much increased, the bowels should be evacuated every other or three days by Lenient purges. Dr. Moore thinks that the bile is an excrementitious, it is so, it is of the utmost consequence to discharge it especially upon a putrid fever it is more acrid than at any other time. Keep your eye on the state of the Alimentary Canal always steadily. In emetic

46 Emetic given just at the first symptom of a putrid
fever assuages, will always prevent it. In the progress
of the disease it is always necessary to cleanse the
alimentary canal, with lenient purges. A sailor
discharged from a ship-of-war shortly after his
commission was siezed with a putrid fever, in a day
or two his mouth had proceeded to a very great
degree, more so than could be expected from the
disease: inspecting that it was from putrid
in the stomach I administered to him Tart: Emet:
Mess: a young Gentleman with him to assist in
quality, with orders to consult him having taken
a remit Mo give him a little liquid laudanum
the vomiting should be excessive. The next day
when I called to see him I found him sitting up, &
the front door. If given in proper time in every stage of
a fever, when there is no inflammation, it may
also be given in a putrid fever after an Emetic, to
allay the irritation. Antiseptics. Bark
with Bitters of all kinds, also porter, wine &

and bark are still more necessary here than in the Typhus mitior. Doct^r. Lettsom has recommended porter; it is a tonic & antiseptic, cheaper than wine when of the best quality & not apt to be adulterated from its bitterness it often stops vomiting. Bitters are Antiseptic & tonic. Columbo Root has especially been used with advantage. Chamomile Tea is also very good. Fixed air from its having had great reputation, but is of no more besides being troublesome. The convalescent state of nervous & putrid fevers is often attended with great danger, therefore you are not to leave your patient immediately, but you must still consider him as a subject of medicine. For 1^st. They often relapse. 2^d. Many die of mere weakness. Symptoms are swelled legs, Anorexia, pukeing in the morning & night sweats, wakefulness, falling off of the hair, & its turning grey. The mind is also much affected in the convalescent state, hence Amnesia or Amentia often follow this disease. The memory & indeed all the other faculties are injured by it. Dr. Leland at five years of age was seized

 seized with a Putrid fever, before his illness, he could read but when he got well he knew not a letter: the voice is sometimes much affected in Putrid Fevers. To guard against these inconveniences, we must put in restorative Medicine & Diet. Of all restoratives Huxam's Tincture of the bark, is the most excellent. a table spoonful, or wine glass full may be given three or four times aday. Porter as a medicine, & as an article of diet is very proper. Oysters form a proper diet, are easy of digestion and afford much nutriment. They should be eaten raw, for in this state, they are most easily digested: there is as much difference between raw oyster & one that is boiled, or roasted, as between an egg that is soft & one that is boiled hard. Another article of diet is Chocolate, & when the stomach rejects every thing else chocolate will be retained, it is probable that there is some nutritive quality in the oil of the Cocoa Nut. The vulgar say that it is heavy & cannot be thrown up.
There have been great revolutions in the cause of fevers within these 15, or 20, years past, for which we are chiefly indebted to Dr. Cullen. We have learnt from

from him the great use of emetics, purging, opium, wine, & bark, which are the hinges on which the cure of fevers turn. Formerly wine whey, & bark infusion were only given: but now we give wine along with bark in substance, without waiting for any intermission, especially when there is any Septic Diathesis. The use of cool air & cool regimen is another great improvement. Ten patients out of an hundred used to die formerly in all kinds of fevers, but now not one in an hundred, or even 300, in this city die, owing to their being generally treated in the manner recommended.

Synochus, vide Cullen's Synopsis

On this disease I have nothing to say. In its inflammatory state, treat it as a Synocha, & when it changes to Typhus, it must be treated as such ——

Hectica is a Symptomatic disease;

consequent on wounds, ulcers, venereal disease &c. and appears to depend on debility, & is to be cured by tonic medicines, as the cold bath &c. —

Phlegmasia, for the definition see Cullen.

Phlegm...

Phlogosis. for the definition see Cullen.

Topical inflammation of any part of the body is called Phl[illegible] or Phlegmon. There are two species viz. Phlogosis & Erysip[illegible] Phlogosis varies in its form & seat. it tends to resolution, sup[illegible] uration, & Gangrene. Our business is, in the first place to attempt resolution. 1st. By bleeding where the inflamm -ation is so considerable as to import fulness of the [illegible] 2d. Purging where the inflammation occurs in the upp[er] parts of the patient, as in the head & breast 3d. light, vegetable die[t] 4th. Cold air & water, lead water has been used to sho[w] & mitigate topical inflammation. Emolient [illegible] of bitter herbs, especially when the inflammation a[illegible] on the limbs. Vinegar is frequently added. If these fail [to] bring about resolution, we must try to suppurate the [illegible] by emolient poultices of bread & milk. Flax seed has been used. also figs & lilly roots & a plaster made of honey & flour. The Lye poultice is to be prefered. It is thus made, one pint of beer, one gill of lye, & as much bread as will make it [illegible] consistence & a spoonful of oil. This stimulates gently, [illegible] an excellent application to a swelled breast. Crude [illegible]

al Ammoniac dissolved in water is accounted an
excellent application. Children are subject to infl
ammation in the neck for two causes. 1st from the
or throat. 2d from Teething, thus Lye poultices are
most powerful applications in these cases. Swelled
breast is a most troublesome disorder, we should
therefore endeavour to prevent it. In Ireland such
thing as a swelled breast is scarcely ever heard of.
previous to a womans lying, she should make it
a practice to draw her breast with her finger, or wash them
with a decoction of white oak bark. This prepares the
secretory vessels to discharge the milk when the child
is born: when this is neglected, after birth the milk stagnates
& produces irritation, inflammation & phlegmon. There
is another cause viz. cold or fever falling on the breast.
We must attempt to discuss it by Spt. Min:, gentle purges &
drawing the nipple gently; by lead water; low diet, a cab=
bage leaf, & a solution of crude Sal ammoniac in water.
If these fail and a tendency to suppurate takes place,
we must have recourse to the Emollient & especially the
Lye

 Lye poultice. It is improper to open the tumour soon, it should be opened in the most dependent point, a large inscision is unnecessary, a puncture will be sufficient oftentimes. —

A sore nipple is a painful & distressing disorder. In this case the lead water applications are of great service, lead mixed with oil has frequently succeeded, after the common applications of Leadwater have proved ineffectual. Women sometimes discharge blood instead of milk from the breasts. It arises from a great relaxation & disorder of the secretion. It is cured by bark, & wrapping the breasts in a flannel dipt in claret or portwine. It is a rare [illegible]

Paronychia or Felon from bruise or cold. It is an inflammation of the periostium of the first or 2 Joints of the fingers. When it first makes its appearance dipping the finger into boiling vinegar will prevent its progress, distilled vinegar will have the same effect how this acts ~~will have the same effect~~ is not easy to determine. Another method of cure is cutting down the nerve in a longitudinal direction. If these have been used without success, or neglected, the disease is [illegible]

the dangerous, frequently tedious. If the bone is carious take it off.

Anthrax, appears on the back, it comes on with [illegible] spreads over the parts resembling an Honey comb, it is necessary to open these little pustules or vesicles, keep them clean & in almost all cases to give the bark.

Burns. The leadwater is a proper & powerful remedy, an ointment prepared of copper or white lead is most excellent application. Soft poultices are useful. The common remedy in this disease is scraped potatoes. Molasses has been used, but is irritating, the best application is a bread & milk poultice Dr Moyse recommends an ointment of lime & sweet oil. it is painful & has been frequently used with disadvantage in the London Hospitals —

Chilblains. are frequently to be prevented from inflaming by cataplasms of snow & ice, or by cold water, the part affected must be rubbed; & fire avoided. When inflamed, or when Gangrene comes on, we must use the remedies proper for such complaints.

In

5th. Abscess should be opened by the knife or caustic
the tubes should be opened by caustic, that is
the process of destroying as much of the wall
part as possible

Gangrene to cure it, make deep incisions, use
scarifications, & apply stimulants, as turpentine; & when
the whole system is affected, Bark must be given in
large quantities

Ophthalmia: or Sullen ——
It is either Idiopathic or Symptomatic. Some eyes
are Epidemic, in consequence of their being asymp-
of fever, so that the fever not the sore eyes is the dis-
ease. which fever may be so slight as not to be obs-
The cure of the Idiopathic, whether it is an Ophthalm
of the membrane or is generally the same.
It does not often extend the inflammatory diathesis
the whole system, tho this is sometimes the case. In
this instance Bleeding is necessary. If this Diathes
is not general, we must use topical bleedings by
leeches, or as a substitute cupping the temples.
Purges are of great consequence & should be given
immediately

immediately after bleeding. There is a kind of inflammation, that ends neither in Sphacelus nor Gangrene; in which case the bark is injurious [illegible] to be cured by topical applications only. It is very frequently an attendant on the Scrophula, venereal disease, Small Pox, Measles, in the first instance it is to be cured by bark. Blisters are very serviceable few cases require a blister on the neck, one behind each ear in general is sufficient. Blisters have been applied to the temples with the most happy effects, much care should be taken to prevent the flies from getting into the eyes. After these evacuations, Tonics of the metallic kind are preferable & none more so than lead water. A poultice may be applied to the eyes composed of bread soaked in lead water. Sometimes the pain resists all these remedies, in which case Opium in solution is used with the most happy effects. When this is applied without success we may make a poultice, as of lead water. If this fails the steam of warm water will sometimes succeed, but there is a suspicion of its being improper upon account of its relaxing quality. Electricity drawing sparks of

56. If fire from any Scarr sufficiently carried off the inflam-
mation. Hence the electric fluid is a powerful tonic
& should be used after the evacuations mentioned. The
Light should be avoided on account of its great vitality
The best way to avoid it, is to confine the patient to
a room entirely dark. This is Dr Cullens way to
avoid inflation from fire. Any mild fire will
always increase. Sometimes even bring on Opthal-
mia. Flickering wood by its mild flame & quick
heat often bring it on. The changing this wood
for oak in these cases is proper. In an inflammation
of the pedebrae there is sometimes a dryness of the
eye itself. It may be corrected by Lassis Carbon-
ates finely levigated & mixed with fresh butter &
rubbing the eyes with the ointment when this disease
arises from heat & dryness is proper

Phrenitis. see Doctr Cullens Definn

The idiopathic phrenitis is very common but the
symptomatic is more so. For the cure consult Dr
Cullens Practice of Physic. The cure whether Idio-

Antipathic or Symptomatic is the same? The
indications are 1st. Bleeding very copiously by; open-
ing the temporal artery has been recommended;
also the jugular vein perhaps XVI. Z blood taken
then would be of as much service XXV. from the
arm, but most patients would rather lose it from
the latter, in a larger quantity. 2. By opening the
bowels by clysters & purges 3. By shaving the head &
applying cold water or vinegar, the latter should
be preferred on account of its sedative nature. 4.
blisters applied to the head are of great service, they
draw more than blisters here 5th. the air is of great
consequence: an erect posture should be recommen
ded in this disease. Opium is certain by injurious.

Cynanche. or sore throat Definition Cullen.
Inflammation the common inflammatory sore throat. Th.
Tonsils sometimes ulcerate only and discharge but little,
other times they suppurate & discharge a great quan
tity. When the pulse is hard, & inflammatory bleeding
a small while speak on the Tonsils, we are notwithstanding

&c.

58. to treat it as an inflammatory disease, especially if the Tonsils be much swelled. The tonsils do not always ulcerate or suppurate, the inflammation is sometimes resolved. The cure consists in purging, bleeding, blistering round the throat ~~about the larynx~~ where the patient is in danger of suffocating. Applied here, they are of more service than behind the ear. Gargles of vinegar, honey, or sage tea are useful. Sir John Pringle recommends the volatile liniment, where leeches are not used to be applied to the neck, this is an excellent application.

Malignant Sore throat. On the subject of this Disease Alexander, Fothergill & Johnston. This species of Cynanche has been confounded with the Scarlatina anginosa. Distinguishing mark. The much greater mortality of the Malignant. It generally attacks the young. It is not peculiar to that age, some authors say it is the same disease only different in degree. But we might as well say that the Intermittent Fever & Typhus were the same disease because there are symptoms in common with both.

of this

this disease in the Spring & Winter in moist & warm weather attacks women & children, & black eyed children oftener than others, for black eyed people possess more sensibility. It is attended with watery eyes, a flat and drawling voice, a lux & symtoms of the Typhus Gravior. Cure. Emetics, Turbith Mineral was given when the disease prevailed in this city, with the greatest advantage, not a patient died who took a vomit of it in the beginning of the disease. For 1st it pukes quickly. 2. copiously. 3. it stimulates the glands, generally, so as to excite a more copious discharge & probably acts by giving a little tone.

Doct.r Ogden of Long Island first gave Calomel combined with Opium, in this disease. Immediately after emetics we are to have recourse to bark snake root & red wine. Detergent gargles were used with advantage made of rose water, honey & muriatic acid. Fumigations of myrrh & vinegar received into the throat as often as the patient can bear them are found serviceable.

Trachealis. Def. from Cullen. This without Synocha

The

60. The particular barking cough is a Pathognomonic sign of the presence of the disease all the other symptoms occur in many others Dr Home first called it the Croup. Dr Michael calls it Angina Polyposa but this includes but one species, & hence it is an improper name. Doctr Monro calls it Suffocatio Stridula. In the state of Pennsylvania it is called the hives. Wh name is taken from the word heaves, because in the complaint the breast heaves. There have been disputes about the Generical place of this disease. Cullen places it among the Phlegmasiae & Monro among Epischesis. It may be inflammatory, & may depend upon suppressed excretions; & it may be spasmodic. That particular cough called by Cullen Tussis Clangosa often happens in the last stage of the small pox, but is then only a Symptom in the Scarlatina Anginosa. Another dispute is whether it be owing to spasm or an Effusion of mucus in the form of a membrane different opinions have been entertained. Dr Michael thought it always depended on effusion. Dr Monro was of the same opinion. But from the

the symptoms, from the method of cure, and lastly from dissection, there is not a doubt of there being two species, or varieties viz Spasmodic, & Humoral or Catarrhal.

The Spasmodic is known first by its coming on suddenly, especially after the first sleep at night. Children sometimes go to bed well at night, and in an hour after, wake with this disorder. 2. It goes off suddenly. This cannot be accounted for but by supposing Spasm. 3. by its yielding to antispasmodics particularly warm bathing. 4. its coming on periodically. From one time comes on in the evening, & disappears the following morning. & return again at the same time next evening.

The Humoral or known. 1st by its coming on gradually. Two or three days indisposition commonly precedes its attack, & the Patients will tell you he think it a common cold only. 2. By going off gradually. 3 its coming with uniformity, and without any intermission of the symptoms. 4. its not yielding to the same remedies as the Spasmodic, particularly warm bathing. The spasmodic

is.

62. is cured, 1st by bleeding if the child is plethoric, or the disease attacks it in the time of inflam.y diseases (2d Emetics which are powerful Antispasmodics. 3d Antispasmodics as warm bathing, garlic and liquid laudanum, blisters as Antispasmodic. Lately by stimulating cataplasms of garlic to the feet or if there is great danger Mustard seed —

The Humoral is treated differently. Emetics sh. begin the cure; & if inflammation is suspected, which is known by the hardness & fullness of the pulse bleeding may be necessary: but our principal dependance is on Calomel in large doses; from 8 to 20. Grs may be given in a day while the disease continues. If it purge too much, restrain it by laudanum, but a moderate diarrhoea is of advantage. Calomel acts by stimulating the glands of the fauces & the mucous promoting a more plentiful secretion & excretion of all the parts; and of consequence checks the effusion into the trachea. See Rushes Essays. Blisters act in the same way viz. by their irritating & evacuating qualities. An...

This is said to be a disease of children only. I have known more than one case of it in adults. [illegible] in the Cynanche Trachealis, that the hoarseness and cough continue after the danger of the disease is over; but the loss of that barking voice the less dangerous to be apprehended. Since I have adopted this principle I have lost but one patient in the hives, which is now 15 years ago. & that case was the humoralis, to which I was not called till the third day. Sweating was used formerly and with the success which was brought on by fumigations [illegible] vinegar —

Pharingea agrees in many respects with the Tonsillaris, but the difficulty of breathing is more remarkable. Blisters are very useful in in this spec: of Cynan^e:

Parotidea: or the Mumps. This disease is apt to fall into the testicles in men, and into the breasts in women after a crisis has taken place. In children the swelling is apt to suppurate & become very

very

pain-

the very troublesome. The cure consists in lenient
purges and discutient applications.

Pneumonia. Dr. Cullen.

The pain is very often in the back, and sometimes
extends as low down as the kidney, as well as the
side. A cough even sometimes as high as there

Peripneumonia, is the first genus in Cullen's

This evidently includes Peripneumonia notha, what
Sydenham & Huxam have described. The pulse
is almost full & soft when first heard, if the patient has been
to be seized with the disease, standing, sitting, lying
upon the back or side, he generally is obliged to
keep that posture during the whole disease.
There is often inflammation connected with
this disease, but there is a suspicion that is depen-
sometimes on an effusion of blood into the lungs
occasioned perhaps by irritation. The Gout
falling on the lungs sometimes produces this

con

considered. Pleurisy may be called a kind of
Apoplexy on the lungs viz Effusion. You must not be
surprised upon my Students, after I am dead and heard you
will proceed with the more confidence, but if I is made
and must do not fear to bleed. A Negro slave in the
Bathing House was seized with a Pulmonary. I
Heard to be nearly dying. His pulse was small &
weak. We bled him with the most marked success. He went
abroad the next day. This species does not go off with
expectoration. Bleeding seems to procure a completion
tion of the disease. This disease is Idiopathic Symptom
atic. When a consumptive patient goes off before the na
tural time of the disease, we suspect this disease to have
taken place, & to have been the course of his unexpected death.

Pleuritis is the second species in Cullens Synopsis.
The spitting tinged with blood is by no means an unfa
vourable symptom in this disease. This Idiopathic
or Symptomatic. In the Latter of the year & particularly in
the southern climates we find a Pleuritis biliosa described
by Huxam, which is a very dangerous disease. Gen.

66. Gen.l Lee died of it on the 5th or 7th day. More people die of Pleurisy in Maryland & Virginia than in Pensylvania owing to its being accompanied with a bilious fever. — Huxam describes a pleurisy accompanied with putrid symptoms. The blood is thin & dissolved. In this case the fever arose from Contagion & the Pleurisy was only Symptomatic. It must be treated as a Typhus with Snake root Vol: Alk: Bark &c. The Idiopathic is cured by bleeding copiously. This is indispensably necessary. One copious bleeding will sometimes cure the disease. To the southward, it is very remarkable, that the patients require the first bleeding to be very copious because they seldom bear a second. XVI ℥ of blood may be taken with safety and advantage. Even XX ℥. If the first bleeding does not relieve, & the hard pulse continues, we must continue to bleed, & not be deterred by the apprehensions of the patient or on acc.t of sex. Females seem to bear bleeding & to require it more than men. I bled one woman 13 times & another 11 in the same disease. They were both pregnant, both recovered & are now living & healthy. Pneumonia attended a

Pale

[tient] who lost 140 ℥ of blood in this disease.
This disorder was brought on by a shot through his
[bre]ast. His name was Mc Pherson a captain in the
[B]ritish army, and was wounded in the battle of Prince
[to]wn. His recovery was very slow. So highly irritable
was his arterial system, that during the whole of his
illness, I was obliged to restrain him to water, in which bread
had been soaked. He took no other nourishment. Sago,
[p]anada, Tisans were all strictly forbidden & industriously
avoided. ℥ LXX are commonly taken away the two
[pers]ons mentioned lost probably 100 each, & one of them rather
more. Gentle [l]enient purges are proper & gentle Diaphoresis
[sh]ould be promoted by small doses of Antimonial [medi]cines.
There is a vegetable substance called Seneka Snake
root. It acts without irritating by nauseating. It is a very
very efficacious medicine in this disease. Blisters applied
as near the part affected as possible are of great service.
They should be applied early, for here they act as eva
cuants. Glysters should be used. ~~when purges~~ when purges
[h]ave not the desired effect (viz. that of keeping ye bowels
regular.

 requeare. When the inflammatory diathesis is subdu[ed]
then we must use Expectorants. After all these reme[dies]
if the disease does not abate, we must have recours[e]
to Expectorants. The Col: Alk: is the most proper
given in the q.d of V gtt every two hours Demulcents
should be prescribed, when the cough is troublesom[e]
for the natural mucus of the Fauces being abraded,
even the air will induce a cough. Flax seed Tea is the
best & proves agree with many people in this disease.
Bran tea is also proper. When a patient has been in
the habit of drinking spirits, it may be proper to
add a spoonful or two to these demulcents, in order
to induce him to drink larger quantities. To mak[e]
a demulsion boil the bran for half an hour, then st[rain]
it, add sugar or honey, & the juice of a Lime or Lemon.
Flaxseed tea may be made in the same way. This
makes a most agreeable drink, it is of consequence to
make drinks as agreeable as possible, in order to induce
the sick to drink more freely. As soon as an incipient
Expectorat[ion]

-solution & expectoration proceeds, we must give [illegible] if an irritating cough attends. Emetics are said to be proper, but come with more advantage after a resolution takes place. When the patient seems to sink under the weight of the matter in the lungs, which he has not strength enough to throw off, gentle vomits of Ipecacuan are to be preferred: an inhaler should be used through which the patient must receive the steams of bran-tea. Dr. Leper gave a dose of a tincture made of camphor & cantharides, by which he used to excite an inflammation in the urinary passages, it did no good untill this effect was produced. In desperate cases it may be admissible. & acts by one inflammation taking off another. Pleurisies are apt to terminate in Vomica or Empyema, & these fatally too in the act of respiration. For their definitions see Cullen's Synopsis & Bell on Surgery. Vomica is one of the most frequent causes that produce consumption, & is the least fatal. Hence we should not abandon

over

in patients when a vomica is formed. If the patient is not of a consumptive make, & especially if the season of the year is such, as to admit of using vegetables &c. milk diet with moderate exercise. there is reason to expect a cure. A young gentleman recovered from a Pleurisy which terminated in a vomica & Empyema, when he got able to go abroad he went to Portugal, where he so far recovered his health as to marry. —

Carditis. This disease says Rush I have never seen, the Synocha is said to be its most distinguishing Characteristic. The Syncope is also a symptom of it, happening without debility when in an erect posture.

Peritonitus I have never seen. See Cullen.

Gastritis is of two kinds, and is a common disease. Diffr. see Cullen. It is often Sanguineous, cont least from internal causes as any Acid taken into the stomach, for instance Arsenic. The

The most frequent cause in this country is
Cold drinks; they will sometimes produce sudden
death. The circumstances must concur that
they produce this disease: 1st. extreme heat of the body
2 the liquor must be very cold 3d. a large quantity
must be taken in. The symptoms which occur in this
disease are weakness of the limbs, giddiness, shortness
Tonic or Tonic. This disease is prevented by cooling the
body diminishing the quantity of the drink, or by
removing the first shock on the head & face.
When the disease comes on Laudanum is the
only remedy. Contrition in some. An inflamma
tion of the liver & sometimes Chronic diseases are
occasioned by cold drinks. In the cure of Gastritis,
bleeding, blistering, dilute acids, & demulcent drinks
are to be exhibited. Gastritis Dyspnoica is of the
Chronic Kind. It is more common than we are
apt to imagine.

Enteritis is more common than Gastritis,

 Is produced by acid matter taken in. & especially by the Cholic. Hence, bleeding is necessary in almost every stage of the Cholic.— Diff.n see Cullen. The pulse is of the Typhus kind. Cure. the same as of Gastritis.

Hepatitis

See Cullens Synopsis This disease is more frequent than the foregoing. The pain sometimes extends across the left Hypochondrium, on acct. of the liver being enlarged by the inflammation. This disea is sometimes taken for a Pleurisy. Sometimes a yellow colour of the skin & frequently of the eye attends. It comes on sometimes like a Colic & this is the worst kind. The Hepatitis is either acute or chronic, the latter sometimes comes on like a Jaundice, the yellowness of the eyes more frequently attends this than the acute species. That inflammation, suppuration, or gangrene is known from Gangrene may take place is known from dissections. The pulse which is hard will always indicate the presence of this disease, hence it is supposed there is no hepatitis without topical inflammation somewhere. When

can

in inflammatory fever is present, we may always
remove that how is inflammation tho it may
be concealed, and a Physician gains credit by assuring
that the pain will come on. A stone in the bladder
produces irritation on the Glens Penis, a stone
in the Kidney will produce vomiting, suppression
of urine, & inflammation in one place, & sensation
of numbness in another. The Chronic is said to affect the Parenchymatous, while the acute affects the membranous
part of the liver. This disease occurs most frequently
in warm climates. The Cure consists 1st in exhibiting Glysters & bleeding copiously 2d in giving calomel
in large doses. This was first given in the East Indies
since it is administered miniserably: There is congestion
in many cases of inflammation especially that of the
liver. Calomel is an universal stimulent & promotes
the secretions & excretions & promotes the afflux of
humors to the stomach & intestines, & consequently lessens it
in the liver. The quantity may be given even to 100 Grs.
Mercury & nitrous salt diuretics when a fever is present. Blisters
are very powerful and should be applied large & directly over

74. over the part affected. If the inflammation is on the outside of the liver, & has terminated in an Abscess it points outwardly & should be opened as a common Abscess. But if from chills & the appearance of inflammation of the internal part of the liver, the Knife ought not to be used, You are commonly obliged to wait the operations of Nature or endeavour to break it off by emetics or purges —

Splenitis.
I have nothing to say on this disease, but what you will find in Dr. Cullen

Nephritis.
See Cullen. It is more common than the latter disease. In this Urine is red, the vomiting is a Pathognomonic Symptom; the drawing up the Testicles in men. There is one symptom which Dr. Cullen has not mentioned viz. a Cholic. The Nephritis is seldom Sympathic. The symptoms come on by Gravel, Falls, strokes, or, or straining in the back, riding a hard trotting horse &c. Cure This consists in bleeding, Lenient purges which are best in a liquid form & glisters, the effect of which is wonderful, for the Colon you know lies

Ab=

-rectly across the kidneys. Or as a fomentation
-ders filled with an emollient glister. The warm bath
and demulcent drinks are of consequence. This may
be made of Flax seed or bran, after then Anodynes
must be given, & emollient fomentations applied to
the back or warm water inclosed in a bladder has
been found useful —

(Cystitis). see Cullen. It often comes on without
any evident cause, but often from the use of Cantharides,
in wounds & injections. The injection of Sac: Saturn:
has sometimes produced this disorder. It happened to a
patient of Dr. Cullen in the Infirmary of Edinburgh.
The there is inflammation, hard pulse, the blood sizy &c
yet the patient keeps up & walks about. The Fever is not gene-
-rally violent, this inflammation therefore seems to be Chronic.
Dr. Bond informed me that he knew of no inflammation that
bore or required such frequent bleeding as Cystitis. Besides
bleeding we must use lenient purges, blisters, demulcents,
& anodynes. When bleeding has not been used sufficiently it
terminates in Schirrhus ulcers or paralysis. Opening the

the bowels frequently by emollient glisters & when Ischuria occurs, drawing off the patients water frequently by the Catheter are of great service and towards the end moderate doses of Opium.

Histeritis. See Cullen Dr. D. of Dublin

has written very learnedly on this disease, & it is my advice to read his work. It is an inflammation of the womb brought on by difficult labour &c. The fever attending this disease, is in the beginning Synocha, then, goes into Typhus hence authors differ in the method of cure. In summer or Typhus gravior is induced, owing to the Septic Diathesis which then prevails. It is of consequence to keep your eye upon the prevailing Epidemics of the season. When this disease occurs in the season of inflammatory diathesis, the fever commonly bears bleeding 3, or 4, Times: but if it occurs in the season for Intermittents you must be very cautious how you bleed. Patients especially women after lying in are very averse to bleeding, but here you must be firm. Emollient glisters & topical applications are useful, stimulant fomentations & emollient cataplasms to the abdomen are serviceable.

Other

Rheumatismus. .. Cullen — Is Idiopathic or Symptomatic. The former again is divided into Chronic & acute. The cure of the Acute consists 1st in bleeding effectually as it is an inflammatory disease 2d Calomel or mercurial ointment, being applied to the part affected 3rd Hamilton in one of the volumes of the medical commentaries has published a treatise on the use of Calomel in all kinds of inflammation, but I used it before I saw his piece. If inflammatory symptoms appear bleeding is the chief remedy, lenient purges blisters, topical bleedings & calomel given in the quantity of Grs IV. per diem combined with Opium also nitre & Tartar Emetic. In this case Blisters act as evacuants. The Chronic Rheumatism is accurately described by Cullen in his Arthrodinia. The cure is different from the acute: the great Desideratum is to restore the perspiration 1st by Flannel shirts 2 by the warm & cold baths 3. stimulant drinks, as sasafrass tea, which is a fragrant, aromatic and stimulating drink. The volatile tincture of Guaiacum has been used with much advantage. For this effect

it

 it may be given from a tea to a table spoonful 3 times a day. 4 drains of different kinds as issues, setons and the actual cautery. 5. Salivation, few instances of Chronic Rheumatism resist a salivation. 6. when all these fail, a warm climate will be of service, to which the patient should be confined for 3, or 4 years, if we wish to cure the disease radically. This acts not only by the exercise of sailing but by the warmth increasing the perspiration. With regard to exercise riding on horseback is absolutely injurious, for when we ride, the joints most affected are not exercised, therefore it must be forbidden. A remark, that I have made, & that is not mentioned by authors, is, that this disease affects old soldiers & officers, especially owing to their intemperance, & the frequent change from heat to cold, but principally the former. The symptomatic species of Rheumatism are very numerous. The female constitution in pregnancy is more disposed to inflammatory diseases than at any other time. This arises from the irritation occasioned by the distention of the uterus. Paroxysms are more violent here than at any other time

Odontalgia

Odontalgia. or Tooth-ach. Caries of the Teeth

from effusion arises in this manner. A Rheumatism seizes the jaw which extends to the teeth & renders them ever after liable to a return of this disorder. My reasons for supposing this are the following. In the Torrid & Frigid zones, the tooth ach and all other inflammatory diseases are scarcely ever found. It is only in intemperate climates where changes from heat to cold are sudden that inflammatory complaints are prevalent. There is another cause of this disease viz. **Scrophula** but this acts only by producing Rheumatism. When the tooth is much decayed, the best method is to extract it but if it is nearly sound the disease may be prevented, by stopping up the hollow of the tooth with tin-foil or gold leaf or burning the nerve with a hot knitting needle. The cure of the tooth ach consists in bleeding, blistering, purging, & opiates.
The Rheumatism of the jaw is prevented by producing an equality of heat, so as to keep the teeth in the same temperature as it were. The French always sleep with woollen night caps & they are observed to

have

80. Since the last teeth of any species. In the day time
the exertion of the system is generally sufficient to pre-
vent all consequences from the cold: but at night
the system is relaxed & consequently more liable to be
affected — Odontalgia. generated from
frequently from the plethoric state of their system, which
renders them more liable to all kinds of inflammatory
diseases. This frequently an attendant on pregnancy
that women sometimes determine this circumstance
by its appearance. In some cases it appears before
the nausea. Dr Hunter recommends Bark to obviate the
effects of Plethora, for which purpose he recently instituted
this method: thus, costiveness the ingesta by giving
the patient a dish of tea first three or four days.
This seems indeed to be a probability as this conjec-
ture proceeding of teeth has lately been a fact
in this country. A sound tooth is taken from another
person & put into the socket from whence the decayed
tooth had been drawn. The tooth introduced is after
some matter & the circulation once taken place in the
that

this we prove from the tooth at its root being always found in 5, or 6, years, when it falls out, which it certainly will do, rotten spongy & decayed. That disease which frequently happens in consequence of replacing teeth, is not venereal, but as Dr. Hunter supposes is produced from irritation occasioned by the putrefaction of the teeth newly set in. This putrefaction arises from the custom of putting in fresh teeth. Hence it is probable that dry teeth would stand as firm & last much longer, for we see that a dry post set in the ground will not rot so fast as a green one. A dentist of this city put a peg of wood into the jaw of a dog, & found that it became as firmly fixed as any tooth.

Podagra in Cullen. It is divided into 4, Species viz. the regular, atonic, retrograde & wandering. See Cullens first lines, also consult Sydenham on this disease, & Warner's treatise on the gout. This Mr. Warner was a clergyman & from being affected with this disease was led to study it, & having reduced himself published his remarks. His theory is absurd. However

If however it is difficult to discern between Gout & Rheumatism, & affections of the stomach, hence preced-ed, you may affirm it to be the Gout, These are pathognomonic symptoms.

The Gout is an hereditary disease and does not depend on morbid matter, but a peculiar confor-mation, & when this is strong, it sometimes occurs as early as 5 or 6 years of age; but most commonly 15 or 16. When the hereditary disposition is weak high living will bring it on, tho' it might not have other-wise occurred. It sometimes passes a son and seizes a grandson. This may arise from the son's having resembled his Mother more than his father, or from his having lived very temperately, which subdued the hereditary disposition or from the Grandson's having lived intem-perately. There are instances of its attacking women who lived intemperately.

The Gout counterfeits all diseases, & attacks all places and parts of the body. I once observed this complaint in the case of a Colo.l Adams. Sir James Faydemus that he had seen an. Sith.

Arthritic Salivation very copious. It seizes the
head, throat, breast, & stomach; also the Kidneys &
penis producing a Gonorrhoea benigna; Apoplexy
peripneumonia. Pleuritic symptoms, vomiting
& nephritis attend; also the ureters & the bladder are affected
& producing what the French call Catarrh of the
bladder. It affects the rectum producing piles, with
great pain. I have seen a fit of piles as certainly owing
to gout as ever I saw vomiting or headach. A gentle-
man had this disorder from intemperance, & it is
remarkable that if he sat any time in a room with a large
company, & where candles were burning he was seized
with a most acute pain in the rectum, & was obliged instantly
to leave the room, & when he got into the fresh air
it left him. Here is an instance of the sedative
effect of dephlogisticated air. A very frequent disease
which it produces is a diarrhoea. I believe, that
that when a diarrhoea continues very obstinate
through life, it is an Arthritic complaint which by
habits of intemperance, is brought on the bowels without
affecting the feet. It is a maxim in all Chronic

chronic diseases of children, where the cause is not evident to suspect worms, in all chronic complaints of women to suspect the uterus, and in men to suspect the gout, especially if the causes capable of producing it have preceded. Dumb gout is a swelling of the lower extremities, without pain, the oedematous kind; it commonly goes off about the same time that a fit of the regular gout does. Its appearance is sometimes alarming. Is there a radical cure for the gout? It may be cured radically, except it be of the Atonic species, which is not to be radically cured. The cure is obtained by abstaining from acts of intemperance, & confining the patient to a milk & vegetable diet & by labour to prevent plethora. The reason why the gout is so seldom cured, is that the person afflicted with it, will not be restricted in, or obliged to change his method of living.

Treatment of the Fit. This impe-

impossible ever to find out a medicine that will radically cure the gout. Medicines may palliate but cannot cure it. The Duke of Portlands powder was celebrated as a cure, & by its stimulating quality, it seemed to have this effect, but every one who used it died afterwards with Apoplexy, palsy &c. Tonic gout. During the fit of this species of gout it is possible to keep the patient, & it is wrong for a physician to turn his back on such a person, as for that person to refuse the aid of medicine. Should there be great diathesis, you may bleed, this was Sir James Jays remedy by which he cured a gout as certainly & as suddenly as you cure a Pleurisy. We must use this remedy cautiously only in the tonic species & young persons. It is gotten into disrepute, ~~from being used~~ from being used indiscriminately by Sir James Jay. Lenient & gentle purges are proper to take off the inflammatory diathesis. Sulphur is supposed to be the best remedy in this species. But this blisters are very proper also. Dr. Chalmers of South Carolina was afflicted with the gout & used to cure himself by applying a blister to the

The pain is fixed. From him I learned the use of Thor
he was seldom confined above 48 hours with it. They
should only be used when the gout does not show a
retrocedent disposition. When the patient will not
submit to blisters, the Vol: Alk: should be applied to the
limb. Opium may also be used. The Vol: Alk: is apt to
produce the retrocedent gout. This is suspected from some ex
periments that cola may be of service from the ana
logy of Gout to other inflammations. This is Dr
Smalls opinion.

Atonic Gout.

Treatment of the Fit. When it
affects the stomach and bowels, we must use strong stimu
lants, as wine Vol: Alk: porter and Opium. Porter is
excellent when puking attends. A gentleman who had
a vomiting which resisted blisters, opium &many other remedies
and had continued 40 hours was cured by porter. The
treatment of the retrograde tendency is the same
If it attacks the head, the remedy for a profusion is to be
used; if the stomach wine, Vol: Alk: spirits, porter Opium.
Dr Small says that in the Atonic Gout, if

cannot be given as soon as the first symptoms appear it seldom fails removing the disease, If this we have no experience, as a physician is seldom called soon enough. After 40 years we must only hesitate. Tis highly improper to change the mode of living after this period, except under certain circumstances: as when their Ancestors have been long lived or there appears to be a great vigour of constitution; for they either die of Consumptions Palsies or Apoplexies. We may restrain the diet & make it moderate, but by no means slow one. When we cannot make people temperate, we must endeavour to prescribe the drink Exact that they be indulged in. Madeira or Sherry wine is apt to produce the gout, Rhenish wine is acid or red wines, which contain much acid (and little spirit) capable of being evolved by the stomach. Cyder is a very improper drink but it is recommended by some to be impregnated with iron frequently in, by which part of the iron is calcined & exposed by the cider. Wild fowls and animals of all kinds are more easy of digestion than tame. And

and full grown animals more than young. Let us endeavour to prevail on them to use boiled meat which stimulates less than roasted & is more easily digested. Let us keep up perspiration by flannel, for we see the gout occurs less frequently in warm than in cold climates and in summer than in winter. Above all recommend exercise, & that kind which calls the affected muscles most into action, hence the benefit of walking; riding except in cases of Atonic Gout is rather hurtful. Walking should not be used to excess, so as to fatigue, moderate exercise strengthens, while too much debilitates. —

Arthropuosis. Deffn. see Cullen

This disease has been called the Rheumatism, terminating in an abscess. It does not yield to mercury or bark, or even opium. The two cases under my care, which terminated favourably, was cured by a plant which grows spontaneously thro' this state called here Thorough-wort, & in South Carolina — Perfolium, because the stalk perforates the leaves —

Order 3d. Exanthemata Def.n see Cullen

Variola or Small Pox. Def.n see Cullen

This disease comes on with a pain in the pit of the stomach, vomiting and a pain in the back, which is more acute than in any other disease. The Eruption begins on the third day and ends on the 5th in the distinct: but in the confluent it frequently begins on the 8th day and is always dangerous. About the 8th or 9th day the eruption begins to suppurate and dry, but when there are very few, they dry sooner and that sometimes without filling at all. The small pox are either distinct or confluent Sydenham & Hillary have written accurately on this disease. Is it not possible to discuss the small pox before the eruption? Dr. Boerhaave & Hillary thought so & said that mercury and Antimony would have this effect. When this disease comes on with Synocha, the remedies are bleeding, purging & vomiting & sweating. by this means reducing the patient as low as is consistent with life. Thus in some cases the disease is rendered mild, when if it had been omitted, the

N.C. The disease would have been probably been confluent & have carried off the patient. The fever accompanying this disease is either Synocha, Typhus mitior or Typhus gravior you must therefore regulate your practice accordingly. In some cases of distinct small pox, Pneumonia may occur which must be treated as if it was idiopathic. —

Pneumonia sometimes occurs when the eruption begins to turn or suppurate, in this case Calomel given in such quantity as to produce a will be of service Previous to the eruption the more cola air the better, but after the eruption when Pneumonia occurs it is rather hurtful, however it may be used with advantage when the Typhus appears. The aged custom to open the Jugulars to prevent the subsequent disorder commonly called Purging is serviceable towards the end of the disease, when there is a disposition to eruption, with Bark & gentle purges will carry off or remove. The method of inoculating I refer you to Dr. Cullen.

Varicella Dr. Cullen. This is an insignificant disease and deserves nothing to be said on it. I refer you to Dr. Cullen Rubeola

Rubeola. see Cullen's Diffn. In this disease the Synocha & Catarrh occur more frequently in winter, than in summer. It is said sometimes to be accompanied with a Typhus. When Synocha, Catarrh & Pneumonia occur in the Measles they are to be treated as if they were Idiopathic, by bleeding purging &c.— The treatment of this disease with respect to cool air is contrary to that of the small pox, for as catarrh &c occur here cold is always hurtful, a moderately warm regimen therefore is preferable. This disease if neglect-ed frequently terminates in a Phthisis. If the pulse be hard, bleeding & a vegetable diet continued for 10, days will be necessary: but when the disease appears with more Catarrh than usual, it may be necessary to continue it as long as 10. weeks. The body should be kept moderately warm during this time. After the disease is cured purges are always improper for this being more than a cutaneous disease, it always affects the lungs, & who would give Drastic

—me

 Drastic Purges in a Phthisis. By vegetable aliment, the violence of the disease may be evaded, as it lessens the inflammatory diathesis, and counter the determination to the lungs. Inoculation in this disease is of no advantage. It may be performed by putting a piece of thread in the tears & applying it as in the small Pox.

Scarlatina Diffusa Cullen. In this country this disease is not always Synocha, it is more frequently a Typhus mitior & sometimes gravior: It is either simple without any other affection, or attended with eruptions of the Fauces. Sydenham has accurately described this disease when simple or un attended with eruptions of the Fauces. This species occurs but rarely.

Scarlatina Anginosa, or Cynanchica of Cullen is more common. This species has been thought to be the same disease with the Cynanche Maligna but it is a mistake. They certainly may be distinguished. Dr. Wetherhill has described them

these diseases accurately, he says the eyes in this
viscus are red and shining, and in the maligna watery.
In this the eruptions in the throat are white, in the
maligna commonly black; in this the breath is hot;
but not offensive as in the maligna.

Multæ desunt.

Order 4th Haemorrhagia

1st In Cullens Synopsis. Hæmorrhagiæ are been
divided into 4 Active and Passive. The active are occasioned
by Arteries full & the passive by a remiss. The active
are in youth, the passive in the decline of life. From the
age of 36 to that of 40, is usually then is a struggle between
the arterial & venous systems; that period of life is general
ly attended with diseases. Among which are 1st Headach
which sometimes goes off till the Plethora is thrown on the
veins; 2d Diarrhoea occasioned by the plethora bound
by bleeding; 3d Piles. The plethora being thrown on the
hæmorrhoidal veins, this occurs at this period of life oftener
than at any other. The Dyspepsia, Hypochondriasis &
Hysteria are sometimes produced at this time. The

of the Stage of Debility. At this time the system undergoes a change which is not produced without some diseases or lesions of the breast & Lungs, a cold, cough & Plethora relieved by bleeding & moderate one moderate exercise on horseback. This consequence of young people from sedentary employments, & frequently lay the foundation for the consumption and other incurable diseases. So much for general observations on hemorrhages. Now to speak of general remedies during the paroxysms. The first is cold, which must in this case be used in such a degree as to become relative, for a moderate degree of cold is a certain stimulus. In battles many wounded soldiers owe their lives to being left on the ground all night in the cold weather, the cold producing a retraction & stopping the flow of blood. The next to cold is bleeding which must be used with great caution. If the pulse is hard and full, bleed, but if the former has taken down the force of the circulation, bleeding will be hurtful

tharthue. 3, 6 grains. 4 Neutral Salts and an earthy salt called Alum. 5. Blisters have been used and applied as near as possible to the part from which the blood issues. The blister acts here as an evacuant & antispasmodic. When it acts as a stimulus, it must be improper. 6th Gentle laxatives will be proper to lessen the tension, & determine as much as possible the force of the circulation from the bleeding vessels. How are we to prevent Hemorrhages? They are 1st prevented by abstinence, particularly from that aliment which produces most blood. 2d By using that kind of vegetable diet, which contains the least nourishment. Vegetable substances are said to be nutritious in proportion 1st To the quantity of sugar they contain 2. to the quantity of oil 3d. to the quantity of Mucilage.

3 They are prevented by constant & moderate exercise which gives tone to the system. For Plethora depends upon relaxation, hence the hearty laborious countryman is not plethoric

Parti=

Particular Hæmorrhag[e]

Epistaxis. Diss.n in Cullen. Before we enter upon this subject, I would beg leave to remark that there are certain persons subject to an Hæmorrhagic Diathesis. When this is the case, the cold bath should have been used with advantage. Epistaxis is either Idiopathic or Symptomatic, and occurs in the old as well as in the young.

Cure. 1.st This consists in trying cold applied to the neck, or to the scrotum which is much more sensible to the effects of cold & dipping the scrotum in cold water hardly ever fails to stop the bleeding.

Warming the face will sometimes cure it, but if it has not this effect immediately it commonly acts as a stimulus & thus increases the discharge. 2.d When these remedies fail we must introduce dry plugs of linen or lint, so as to compleatly stop the nostril. This plug must remain an hour or more & sometimes for two or three days, & if it should slip out, we should introduce a dry one, for on the dryness of the plug depends the

the success. Common salt has been used with advantage in Epistaxis. in the manner hereafter to be mentioned, under the cure of Hæmoptysis. But it is absolutely necessary that the patient should not sit up.

Hæmoptisis. Def.n in Cullen's Synopsis.

the species Symptomatic or Idiopathic. see Cullen's Synopsis. A spitting of blood occurring in consumptions is commonly a fatal symptom. A suppression of any usual discharge sometimes produces an Hæmoptisis. The symptomatic arises from Catarrh. Measles, Small pox &c. In the small pox it is an alarming symptom indeed. The cure consists in bleeding, Opiates, Acids, & avoiding violent exercise & especially lifting weights. Bleeding is generally absolutely necessary. After bleeding opiates, then acids, as rose leaf tea with vinegar. Rest & quiet consequence & should be strictly enjoyned. A remedy has been lately discovered for the Hæmoptisis, which renders the most of the others unnecessary, tis <u>Comon Salt.</u>

which

which to be sure is the last that would occur to a regular practioner of Shawhead and known of more than 100. cases in which it has proved serviceable. The dose is from a tea to a table spoonful, which generally cures the disease, but should be repeated in 24 hours after to prevent the return of it. The acid produces thirst, a sense of burning heat in the fauces & stomach. Thus persons who use their lungs much, as the Gunners who sing much. Players, Lawyers, and watchmen are seldom afflicted with this complaint. Thus Hemorrhagy generally occurs in debilitated habits and at a time when the lungs are in a passive state as walking, sitting, lying &. Hence may we not reason that common salt, by invitating the mouth and oesophagus, communicates stimulus to the bleeding vessels & thus prevents the future effusion? But the use of common salt should not supersede bleeding and the other remedies. —

Phthisis

Phthisis Pulmonalis.

Dr. Cullen's Synopsis. 1st arises from Hemoptisis Abscess, Asthma, Catarrh, or Tubercles. Tubercles in most cases arise from Scrophula and are generally incurable. It has been supposed that in Great Britain 2200 die of this disease. The best common remedies are 1st. Bleeding while the pulse is hard or the blood sizy. 2d. Milk Vegetables diet 3d. Avoiding all kinds of irritation 4th. Determining to the surface of the body 5th. Making artificial drains, by means of Issues and Setons 6th. Attending to the determination to the lungs 6th. An agreeable atmosphere. The climate of Barbadoes is esteemed favourable to consumptive habits. Lisbon has been found to unfavourable. These are the common remedies. The fact that may direct your attention to useful observations on this subject is, 1st. It is unknown among the Indians in their natural state. 2d. It is scarcely known among

among the Inhabitants whose lives most nearly approach that of Savages. The life of the first settlers of this Country comes nearest that of the Indians. The consumption, it is observed, is very rarely among them. 3^dly it is less common in country places than in cities, and increases with intemperance, and sedentary modes of life. 4^th Ship & house carpenters, smiths &c. whose business requires exercise in open air & whose diet is not generally very luxurious, seldom have consumptions. 5^th Women, especially those who lead a sedentary life are more liable to consumptions than men. From these facts, we may hope to prevent consumptions, by observing the primitive manner of life. I shall examine here only a few of the usual (variety of) remedies, which, at one time or other have been famous, for this so dreadful and fatal disease and endeavour to shew that the efficacy of the most of them depends on the exercise and air

which

such necessarily accompanied the use of them.

2ly. Sea voyages have sometimes proved benefi
cial, because of the almost constant exercise.

3dly. Change of climate has been recommended, but
cannot be numbered to those kind of the curing Con
sumptions, unless accompanied with travelling
on the open sea. 3dly. Journeys have often performed
cures, but chiefly when long and accompanied
with difficulty, which raises the strength of mind
and body. 4th Emetics of nauseating medicines
have been often recommended. but I do not remember
an instance of their having cured when unaccom
panied with exercise. 5th. Bleeding has often
relieved, but it is only by taking off the inflam
matory diathesis, which exercise would have done
much better. 6th. Vegetable tonics and stimulating
gums have been of service, but it was when there
was great debility. 7th. A plentiful nourishing
vitiated by any means has often produced life. but

 but this cannot be properly kept up, without
exercise and that in wholesome air. 8thly Liste
-lens, Issues become in like manner drains
to carry of the redundant fluid, which ought
to have been dissipated by moderate exercise.
9thly Swinging acts in the same way, and is thus
a gentle and agreeable exercise, & may substitute for exerci
:- From all these facts, it is evident, that the
remedies for consumptions must be sought
for in the exertions which throw off most plenti
=fully. 1st I have known men cured by the hard
-ship of a military life 2ndly During the war before
last a Mr. Lawres was carried away by the
Indians & kept by them for a considerable time
He was dragged from home when ill of a cons
=umption; but the simple and rough living of
the Indians, which he was obliged to submi
to, cured him; nor did ever the disease return
These facts are sufficient to establish the utili
of those laborious exercises which I have enumerate

Where Brooks, Woods &c. are wanting,
substitutes may be obtained for them, and Rt. Dr.
Sydenham announced nothing on horseback
as certain a cure for consumption as bark for the
Intermittent which so as certainly believe as
that inflammatory fevers are more scarce now,
than when Sydenham wrote

2. Agriculture, if at the same time accompanied
with farmers diet, and hard labor, is useful.

3. Such occupations as oblige long exercise in
the open air. The more feeble a constitution is, the
more laborious should be the way of life to prevent
this disease. If Dr. Small relates a case of the
Scotch during efficacious in the cure of consump-
tions. I have heard of a similar instance of a
negro in the West Indies. He may prolong life
by using the debilitating method only.

That it certainly can in inflammatory diathesis
connected with debility, which prevails more
in cities than in the country & in women more

more than in men. It appears to arise from
indirect debility, as it is called. Here the symptoms
of this species of pulmonary diathesis, which
renders consumptions more difficult to cure,
than formerly. It is this that renders visiting an
hospital so ineffectual. It is more possible to regulate
the tone of the system by assault, would add that
the system should be raised to the greatest vigour
tone to cure consumptions.

When inflammatory diathesis prevails or vegetable diet
is proper, but when the disease has passed this
period, I think from experience meat may be taken
in a moderate quantity. The South has been given
with evident advantage, where there has been a
total absence of pulmonary diathesis.

There is a man in one of the back counties of
this state, who, it is said, is famous for curing consumptions. His remedies are, lying out of doors,
with a fire at the patients feet and the use of sweet

Hemorrhois. Diff.n of the diff.t species & proximate cause of which see Cullen's Practice

This disease is frequently caused by costiveness, hence sedentary people & those who ride much on horse back are most frequently troubled with it. It sometimes comes on with the symptoms of Pyrexia, & must be treated like other active Hemorrhages by bleeding and lenient purges, of which sulphur is commonly used. The Butternut pill is a gentle Laxative but as it possesses some narcotic powers it is not safe to use it any length of time. There are many instances of many people dying apoplectic & others being seized with Palsy from the habitual use of this Medicine. Dr. Morgan's remedy for obviating costiveness was to make the Patient everyday at a certain hour set on the close stool by which means the evacuation at that time became habitual, & thus the use of all evacuants became superceded. Aloes is the most improper

2. Laxatives must be used, for a frequency is the
cause of the disease. To relieve the pains various
applications have been used such as equal parts
of Opium ground with Oil, Acetic Acid &
Hy. Hyosc. Stramonium which is very proper
as having a wonderful property of allaying irri-
tation, In making the ointment it should
not be rubbed to oil. Tar Ointment is a good
application. Rheumatism has been cured by an
Ointment made of white Lead & sweet oil in equal
quantities applied three or four times a day.
A moderate regulated diet will be proper,
because it affords less blood and is more efficacious.
When fevers have been used to bleeding we must
suspect it with great caution.
Vomiting of blood from the stomach
Have frequently occured to occur in Head dis-
ease, & in consequence succeeded well, as a blow
upon the region of the stomach. Suicide
shock will sometimes occasion it.

gentleman whose horse stumbled but
but not fall was taken with a vomiting of blood
The remedies are Liquid Laud. 1st. Com.n Salt
which I have once given with success. 3d. Cold water
taken into the stomach or applied externally.
I have lately seen great advantage derived from
the Application of a napkin dipt in cold water
applied to the epigastric region*, in the course
of ten minutes the Hemorrhage ceased. If this
had failed I would have ordered glysters of cold
water to be injected. I have had no experience of its effects
Should these fail Sp.t Terebinth. may be given. It may
appear strange to order stimulants in such a case;
but if we consider that in passive Hemorrhages
debility prevails we can easily conceive that stimul.ts
give tone to the vessels of the heart and thus stop
the Hemorrhage, hence in this disease they
are absolutely necessary. ———

* abdomen.

4. # Menorrhagia Deffr in Cullen.

Tis a common remark that Childbearing takes place only during the Menstruation, but from the authority of Dr Hunter we understand that women often bear children both before and after menstruation. Pregnant women sometimes have the meses, & that monthly during the whole period of gestation — Smelly mentions this hence we should not be surprised at it. It is supposed this evacuation is from the vagina.

Menorrhagia Uterina is sometimes connec with tension and sometimes with debility. Tr in both cases is nearly the same. The first thing to be done is to recommend rest on the back; becau in this posture fewer muscles are in action. You can seldom cure a Menorrhagia when the patient continues to walk about. If the patient be of a full habit bleeding is necessary but we meet with few cases which require it.

plain is an excellent remedy. Dr Young of
Inbrough entertained the highest opinion of Opium
in this disease. Cold air is also found to be
excellent. as also cold water; Vinegar likewise
is serviceable. Flour thrown upon the bleeding
part has been found to form a Styptic by
coagulating the blood & absorbing its thin parts.
Alum may be given with success from X to XX
grs three times a day. The recurrence of this
disease depending on Plethora is to be prevented
by moderate diet & occasional venesection but
at seasons, after some time active exercise as
walking riding &c. When it is connected with
debility we are to use Tonics, as Bark, steel, Aether
& cold bath. Blisters are proper when
there is a dropsying ooze. They act as evacuants
the same as Tonics. They should be applied to the
thigh, as high up as possible. Ipecacuanha
has been much & justly recommended in this disease.
It acts as a tonic. A Respiration of conjoint doses

C. Though the mitigation of the symptoms
of friendship is with [illegible] duty in totality and regular
Excursions in the country have been amicable.
Keeping up the perspiration by flannel is necessary
The Hemorrhagia uterina is usually to child
birth & most miscarriages are brought on by it. It
may be avoided by occasional bleedings. Bran
the bowels of pregnant women & Fathers.
There is no discovery when we cannot pursue
like the mercury remedies from VI to VIII
should be taken away once every month for the
four or five first of her disease.

Leucorrhoea may be easily distinguished from
Gonorrhea by its being accompanied with chron
diseases Tis a great enemy to child bearing
tho it do not always prevent it. Ass
consider it a disease of the whole system, an
attempt the cure of it by general remedies as
Bark, Steel, Cold Bath, Exercise, Turpentine &c.
Sometimes the matter is so acrid as to produce
ulceration Tis then difficult to distinguish from [illegible]

Catarrhus Lect. Dr Cullen.

There are two Species the first from cold the 2nd from contagion. That we are capable of having it from cold is certain, but whenever Catarrhs are universal it is presumed that they are from contagion & we have not more doubt of its being a contagious disease, than there is of the small pox. It is so great a degree as to extend over the whole continent in two or three times. The Influenza of the Italians is the same disease one of ten five children only affected by it & at other times grown people & there is a species that affects cattle only

There is an Island in the west of Scotland, to which if a stranger goes from any country whatever within three or four days after his arrival all the Inhabitants are seized with a Catarrh. The fact related by the Revd Mr Cawley. Tis supposed to depend on the inhabitants living in very low fare, while the stranger from having lived higher had a certain acrimony in his perspiration which occasioned irritation & produced the Catarrh. It has been observed that

8 That men of different countries being suddenly
brought together become sickly by the difference
of perspiration therefrom. This was remarkably
instanced in the late war by the Connecticut
while the Army lay at Cambridge Ann. 1775.
In the New England troops amounting to 15,000,
one such fever was seen. When the armies met at
New York from the different states the fever raged
with great violence. The Indians know nothing
of Catarrhs The they do of colds.
Respiration is thought to be specific, as dogs are
thereby distinguished their masters. In a family
in this city consisting of one hundred persons every one of them
was seized with a catarrh. This undoubtedly was from
contagion. Most Consumptions arise from
neglected colds. Dr Huxham used to say that the plague
only was worse than a cold. The patient often
suffers much from being able to talk about their
disorders to a physician. What is death else than
a very great cold. Bleedings frequently necessary in

in this disease. Gunnick never fails of curing himself by eating a salted herring at bed time. This acted by exciting thirst. Demulcent drinks as Flax seed tea Lemon tea, barley water boiled with raisins; sugar candy, mild oil with sugar rubbed in it have been all found useful. Opiates are necessary in this disease and should be used as early as possible after the usual evacuations of bleeding----

Bleeding when other remedies have failed has been found useful. Additional warmth is necessary in the convalescent state. Cold is certainly injurious whenever the lungs are affected. Riding on horse back is of service for shaking off the remains of this disease. Night air is to be avoided and flannel shirt is of use. Bathing the feet in warm water serviceable. Consumptions generally succeed colds if neglected.—

Dysenteria. [illegible] -

Whether it be Idiopathic or Symptomatic is disputed. the fever is supposed to be the primary disease.

10. Is it a primary disease it often occurs as a symptom of a fever called by Sydenham *Febris Introversa*. In this city it is generally complicated with the intermittent. In both cases the cure is the same, therefore 'tis of no consequence which it is. If the inflammatory diathesis be considerable, bleeding is necessary. Lenient purges are requisite in all cases. Rhubarb is at present considered an improper laxative. Salts, Crem. Tart. (Manna & castor oil are the most proper. If a disposition to puke appears vomits & purges are by all means to be persisted in, whilst the symptoms which require them continue. This disease has been found more fatal in children of 4, or 5, years old than in adults, probably from their unwillingness to take proper medicines.

The Irritation may be relieved by Opium which should be given in every case of Dysentery every night. Demulcent drinks are proper, that made of harts-horn. Gum Arabic &c. Demulcent injections with a little Liq. Laud. are serviceable.

Bullock meet boiled in milk or mutton broth
in the same way is sure. Blisters on the wrists
have been found sure in the Yaws intermixed of this
city. They ought to be applied on the 6, or 7, day, if
the disorder yield not to the former remedies. The fever
attending this disease is of the Remittent or
Intermittent Kind: in which case the bark with
opium is an infallible remedy. The Diarrhea
accompanying it must be treated as we shall direct hereafter.
Palsies and Paralytics of the upper & sometimes
of the lower extremities follow this disease. As
in the Cholera Pictonum of the West Indies.

Neuroses — see Cullen.

Order II. Comata. Apoplexia

There are different species and degrees of this affection. 'Tis sometimes very profound and accompanied with total loss of reason. In Apoplexy there is either an intravasation or extravasation of blood or serum. That depending on extravasation is beyond the reach of our art. The third fit of an apoplexy is not necessarily fatal, people have had 12 or 13 fits especially drunkards & sometimes people die of the first or second fit.

The II Species of Apoplexia Sanguinea is the most frequent. The first remedy is copious bleeding. This disease depending on ordinary debility, acts as a stimulant producing full pulse & all the symptoms of inflammatory Diathesis. 'Tis remarkable that the pulse is not so hard here as in usual Inflam. Diath. The bleeding should be profuse; a vein in both

with arms should be opened & take away 20 or 28
ozs of blood. Ice have been taken in some cases
with advantage; the pulse must be our guide,
Erect posture: loose Garments, Aperient Glysters,
Strong Cathartics, Blisters to the neck, & deliver
Stimulating cataplasms of mustard seed applied
to the feet are found of use.
Dr Fothergill recommends emetics in this case.

II. Species Serosa will sometimes occur in dropsical patients. Remedies as above, bleed with caution - stimulate with spirit.

III Species Hydrocephalica.

This disease is supposed to depend on Inflammation of the brain. It has been asserted in the Periodical papers of London, that it has been cured by the use of Mercury. It generally proves mortal several ounces of water has been found in the Brain of those who died of this disease.

IV Species Atrabiliaria. seldom met.

V Species Traumatica. This is to be treated in the same manner as the Sanguineous.

VI ditto Venenata. The most frequent cause is strong drink. This species of Apoplexy is present when a person is dead drunk. some die of it. Cold water & fear are said to be efficacious remedies. Another frequent cause of this species of Apoplexy is Mephitic air discharged from fermenting liquours. Buckets of cold water thrown upon the face are useful. Blisters or a red hot iron applied to the head are said to be of advantage. Wine cellars or vaults long shut up are dangerous. The same disease from Insolation is to be cured by cold water & pu[illegible]

Apoplexy from cold belongs to this species. Frictions with snow & flannel are of service, approaching too near the fire is injurious.

VII. Apoplexia Mentalis. caused by anger is cured by bleeding blisters. & that from joy by cold air and water

18. Apoplexia Cataleptica. Cullen never saw it

19. Suffocata this takes place in persons

whom hanged or drowned. If there be any cure

'tis by wrapping the body in a blanket and rubbing

& inflating the lungs, injecting in to the intestines

As soon as patient can swallow volatiles & stimulants

must be exhibited. Bleeding must not be practised

untill the pulse has recovered its full vigour.

Dr. Franklin says he has slept agreeably when in a bath

Why does the body sink being specifically lighter than

water? Because the patient dies in fear which lessens

the bulk of the body & thereby renders it specifically

heavier

The Symptomatic species of Apoplexy are.

1 Febris Intermittens This is very frequent in this

climate, & is occasioned by the exceedingly sedative power

of the Miasmata the remote cause of these fevers.

A lady who was again taken with Apoplexy

16. Apoplexy was cured by Earth.

2 Febres continuæ & eruptive fevers begin with apoplexy.

3 Epilepsia often assumes the appearance of apop.

4 Hysteria. counterfeits almost all diseases & among the rest Apoplexia.

5. Podagra. Gout frequently puts on the appearance of apoplexy & epilepsy more so than any other disease.

6. Vermes. sometimes produce Apop. as almost all disorders of the human body

7. Ischuria & Scorbut Scurvy & scurvy some produce apopl. those who die of Ischuria die apoplectic

Prophylaxis or Method of preventing the Temperance is necessary. Heaviness sleepiness, giddiness & acute pain in the head usually precede it. Heat exciters are improper. Lenient purges are of

of the utmost consequence. Exercise is invaluable.
All the patients cloaths should be loose. Keeping
on the back is improper. Issues Setons are serviceable.
Restoring suppressed evacuations are of use.

Paralysis Definition &c in Cullen.

Hemiplegica, is sometimes occasioned by the Spina Bifida.
Paraplegica is generally incurable.
Venenata From poisons — The causes are the
same here as in Apoplexy. Want of mobility or exertion
in the nervous ~~system~~ power. In palsies from effusion
the pulse is always full. The remedies are Venesection
in large quantity, purges — Aloes have been found
of peculiar efficacy by stimulating the rectum and
thus taking off the irritation from the brain.
Blisters applied to the neck have proved serviceable.
Effusion in the head is chiefly distinguished
from the want of mobility in the limbs.
The palsy from want of mobility occurs from colds
or Rheumatism sometimes.
When the sinews & nerves affected Electricity has
been found of use. Hot & cold baths immediately after

 after each other. Rubefacients as mustard stinging with nettles Blisters &c Frictions with the flesh brush or Flannels. Weights appended to particular parts affected have been useful Dr Cullen obliged a Girl affected with this complaint to put her arm into very hot water, then to lift a small weight, by degrees a heavier by which judicious method she was relieved

Prophylaxis the same as in Apoplexy—

Tremor def.n See Cullen.

This disease is connected with palsy. There are th[ree] species from weakness palsy & convulsions. Tis produced by all passions of the mind as Fear, Joy, Anger, &c. a frequent cause is strong drink. Founders & Metallurgists are affected by it. Tis supposed to arise from the immoderate use of Tea, Coffee Tobacco &c Sir J. Pringle was affected with tremor in consequence of using snuff & was cured by leaving it off. Remedies of Tremor are 1 To avoid the cause. To use Tonics. Bark, Steel & particularly cold ba[th]

Syncope;

Adynamiae see Cullen.

Syncope, the motion of the heart diminished. Cullen has properly distinguished between syn. which depends on the heart & that which depends on the brain. The first arises from a fault of the heart, and is beyond the reach of medicine the latter from Evacuations, fatigue, passions of the mind, particular odors, particular sights. Remedies, a recumbent posture, cold water applied [illegible], & friction. Wine when the patient can drink. To prevent this disposition tonic Med. [illegible] cold bath is effectual. Resolution avoids a species of syncope that arises from Antipathy.

Dyspepsia see Cullen.

This is a frequent disease it is either Idiopathic or symptomatic. The symptomatic is either from disease of the stomach or the other parts of the body. The stomach has been very justly called the

[illegible]

 the Centre of the Nervous system, scarcely any part of the system can suffer without affecting the stomach: And only the affections of the body but those of the mind affect it likewise, as Anger Grief &c producing some of the symptoms of dyspepsia. Very warm or cold aliments & difficult digestion affect it in a particular manner

Cure. Avoid all the remote causes particularly spirits. administer Chamomile tea or any other bitter, common weak tea will do.
Emetics of a tonic nature as Col. Alk & Ipecac.
Laxatives, sometimes as Rhubarb Aloes
Tonic medicines as Chamomile, steel, Colum.
Garlic Emetics, raw onions, Elix. Vit.
Aromatics. Exercise. Animal diet, not subject to acetous fermentation, are of use
Lime Water are the most proper drinks these give tone to the stomach & prevent nausea

~~Hypochondriasis~~

Nausea marina is a disease concerning the proximate cause of which physicians are not agreed. The patient may be relieved by gentle Laxatives, opium, porter, bleeding just before going to sea & taking a gentle purge. lying with the head lower than the heels has been found to cure it. A draught of salt water also.

Hypochondriasis. see Cullen.

In order to understand this disease we must explain a few terms

Sensibility is the power of feeling without motion or a power inherent in the body of conveying sensation to the brain

Irritability is impression & motion combined. This is also called contractility.

Diseases sometimes arise from excess of sensibility sometimes from Irritability sometimes from both called Mobility.

When a defect of sensibility takes place tis called {Stupor

When a defect of irritability — Torpor. & both — Inertia.

22. The Alimentary Canal is the principal seat of this disorder as well as of Dyspepsia but to constitute the former, but to constitute the former a lowness of spirits must accompany the affection of the alimentary canal. It appears in a variety of ways as Costiveness, which arises from Torpor of the intestines, as in Insensibility of the Intellectual faculties. Many persons may be exposed to Cold Heat &c without being sensibly affected by them.

Hypochondriasis shews itself in a difficulty to vomit, the stomach partaking of the Torpor of the Intestines. A Diarrhoea sometimes occurs: but Costiveness more generally (Vomiting less than natural).

Tis often confounded with the Hysteria. They are thus distinguished

1. Men are more subject to this disease than women.

2. More common in winter than summer (Since the Them warm ble-)

3. Tis peculiar to Sedentary employments.

4th. No Globus Hystericus ever accompanies this disease, but it is one of the most Pathognomonic symptoms of Hysteria. The other symptoms are in common with both —

In Dyspepsia you have disease of the Stomach without lowness of spirits. but here the disease of the stomach is accompanied with lowness of spirits. The Proximate cause is a defect of mobility. Hypochondriasis occurs in melancholic temperaments, Old Men, Students especially of Physic & Divinity. Where exercise is not duly employed, 'tis sometimes with gravel.

Cure nearly the same as in Dyspepsia, warm drinks and bath are pernicious. Calomel as being an universal stimulant is proper, it should be given in such quantity as to produce a salivation. Long journeys have been serviceable. Anything which tends to support a connection of ideas in the present thoughtful ~~situation~~ should be recommended. Pursuits which interest the passions are of consequence.

Chlorosis. 'Tis a female disease & sometimes proceeds from an excessive retention of any Discharge of the menses as well as retention.

Remedies. the same as in Dyspepsia but here Bark & Steel are of more consequence also the cold bath ——

Spasmi see Cullen --

Spasms are either Tonic or Clonic. Tonic not alternating with relaxation. Clonic is that which alternates with relaxation. We must say a few words on nervous tension which may exist without Arterial Tension. There is a certain degree of nervous tension necessary to health, depending 1 On original stamina 2d, On the tension of the arterial system 3d, On the degree of fulness & tension of the alimentary canal and organs of generation 4 On exercise in a certain degree 5th On a certain degree of cold ——

Heat and the want of exercise produce Sensibility
Irritability & Mobility which are the causes of a due
degree of tension.

Tetanus — in Cullen.

This disease is supposed to depend upon Universal debility
Cure. must be attempted by Tonic remedies as
Bark, Wine in large quantity Cold Bath, Inhalation.
Trismus Nascentium may be prevented by purging
of the Meconium by a little Manna & Magnesia

Convulsio — in Cullen.

This disorder is supposed to proceed from Worms.
Opium is the only remedy during the fit. The
dispositions to be overcome by Exercise the cold
bath. Warm Bathing friction are added.

Chorea — in Cullen.

This occurs between the 10 & 14 years. it may be
cured by worm medicines. Nut Powders Mark
Colchicum &c

Paralysis. Depositio — in Cullen.

Causa cura &c in ditto

26 Epilepsia. Syn. in Cullen.

This Idiopathic or Symptomatic, this sometimes comes on for Hysteria.

Its proximate cause is mobility. Remedies are usually Tonics of every Kind, astringents, bitter infusion Cayenne Gumming Zinc, Blue Vitriol with Zinc has been said to produce a perfect cure. Seasons when plethora exists, sudden fear, changes of climate & education. Miasmas by giving tone to the nervous system. Of course to the nervous which takes off the disposition to Epilepsy. Quack is said to have cured this disease by giving the blood of a land Tortoise warm for Three mornings successively —

Palpitatio in Cullen — —

When Idiopathic. Its invariable when Symptomatic it yields to the remedies proper for the disease of which it is a symptom as Gout, Hysteria &c ——

Asthma in Cullen

This divided into humid and Spasmodic. In every case of asthma there is spasm sometimes it may arise.

Dejection in general is in proportion to the affliction
on the lungs.

Cure. in all Pulmonic Species should be the same.

Bleeding ought to be the first remedy. Where is pain
seated in the Thorax it is an alarming symptom it yields
to bleeding as do other symptoms equally alarming.
Vomits are next to bleeding after these indications as
Gum, Spirits are given equills are the most proper
Garlic, & Gum Ammoniac are proper also. Blisters
are most excellent. Laxatives & Issues to prevent ob
struction. Consumptive women ought to nurse their
children as there is the Plethora which should be taken
off by sucking falls upon the lungs. It is well known
that a certain quantity of moisture is necessary in
the atmosphere for the well being of all animals.
In such proportion as that quantity is increased or
diminished in the same proportion will those
troubled with Pulmonic affection be affected Had been
found favourable to asthmatic persons. Heat is necessary
what should be found to diet, indigestible food & small liquors avoided.

28. **Dyspnœa** see Cullen. Cure the same as that of Asthma

Pertussis. see Cullen. —

This is a contagious disease and certainly a spasmodic one. The seat of the spasm is supposed to be in the trachea or bronchia also in the stomach according to some. There is generally inflammation. Six weeks are supposed to be its ordinary duration: yet it sometimes lasts three months. Adults are sometimes affected with it. This disease sometimes ends in a mortal consumption.

Cure The most effectual remedy is bleeding in the when the inflammatory diathesis takes place. Vomits Oxymel Scil. & Ipecuanh. or Tart. Em. repeated three or four times a week. Gentle laxatives as Rhub. & Calom. Antispas. Ol. Succ. Cardui. Assafoetida & Opium. 10 or 15 drops of the tincture of assafoetida given 3 or 4 times a day will be of service. Hem. has been of service. Cantharides likewise. A pitch plaster between the shoulders fastened by Ruchum changed every fortnight is of use. Change of air.

Pyrosis in Cullen.

This often occurs as a symptom of Dyspepsia, not always a quantity of limpid water is often discharged without pain.

Cure. is effected by blisters & common Stomachics —

Colica in Cullen.

Women are more subject to this disease than men.

Cure in plethoric habits bleeding, as the intestines are sometimes inflamed. This sometimes cures as it takes tension from the whole system, as it does from the bowels. Gentle laxatives Crem. Tar. in the dose of ℥ss or ij 3 or 4 times a day, neutral salts in small doses & castor oil have been found of use. Moderately stimulating Glysters after the feces have been removed by gentle purges are of use, salt is mixed with them with advantage an infusion of tobacco or smoke injected has been of use. Warm bathing has been found of great advantage. Opiates are necessary throughout the disease. Blisters applied to the thighs have been used with great success.

Prophylaxis

patients ought to avoid pork, veal, lamb, tea & coffee should be forbidden our patients. Gentle laxatives & Gummi too. exercise, cold bath, (?) flannel cloth has been useful —

30 Cholera — in Cullen.

Hinderers appears in warm climates in July
and August. It is supposed to arise from an excess
in summer fruit. This disease is much more
dangerous in children & young subjects.
The same disease as the Cholera in July & August
Febris Remittens Biliosa in Septem.r & last 6 continues
six weeks sometimes eight, more in October
the inflammatory Fevers.

Cure. The contents of the stomach should be
first discharged by warm water or chicken broth
we must have immediate recourse to laudanum
which must be our chief dependance. Next
Aliments, Sweet teas, toast Water, Mint tea, Chamil
tea, rice water particularly. A Blister of Lemon
Juice applied to the umbilicus & groin
is nice. To mitigate the Spasms of the extremities
rubbing them with warm Spir.t is efficacious. Oat.l
toasted like coffee drunk grounds Salt has been efficatious.

Cure   Evacuate the bile by Ipecacuan^a & Tart. Emet.
Gentle laxatives. Opium — Demulcents as the white Deco^n
Glysters of Flax seed Tea or mutton broth with L. Laud.
starch dissolved in water — Cordial & Tonic medicines
as the decoction of Bark with nutmeg — indulging
children sometimes in their desires of stimulating
aliment has cured them.

Preventatives are. daily use of cold bath of
strong old wine — a moderate use of salt meat
removing children into the country before the
time in which this disease occurs.

Diarrhea in Cullen.

All ages are subject to this disease tho' it more
frequently happens from the age of 36 to 50.
It is often of long duration sometimes 2, 3, 6
months. Instances are recorded of its lasting
15 years. These supposed to be of the Catarrhal
kind, it often follows Dysentery.

Cure   Rhubarb. 2. Vomits of Ipecacuana.

32. repeated every week 3) Astringents as infusions of oak bark, tormentil rot, Portwine. Bitters stimulants as turpentine pills, decoction of Guai. Decoction & chamomile tea Mallows tea, Lime-water mint tea & Blisters applied to the wrists are very serviceable tho they do not always succeed they may be repeated upon the former being dried.

The diet must be regulated according to the appearance of the stools. If black vegetable aliment and Summer fruit will be proper then we suppose that animal acrimony prevails. Exercise is of great consequence; Flannel is useful. Such an obstinate Diarrhoea has been cured by an inflammatory diathesis, there has been an instance of a lady with child, who being troubled with a Diarrhoea, was seized with a pleurisy, she was treated as for a pleurisy and was surprised to find that her lax had left her. As the Pleurisy is attended with increased tone of the arterial system. It is supposed to have cured the disease by imparting tone to y^e alimentary canal.

Rickets see Cullen.

this disease is connected with debility and rickety adults. It yields to Tonic medicines and the cold bath. Dr Meade has treated of it largely. common salt taken every morning is said to have cured it.

Hysteria see Cullen

This disease may be distinguished from Hypochondria 1st by its affecting more women than men.
2d affecting single women more than married.
3d here the Globus Hystericus is Pathognomonic.
4th this is a disease of warm climates at d[illegible] of cold
Hysteria has been confounded with Epilepsy.
Its proximate cause is the same as that of Epilepsy viz. Debility —— Cure the same as Epilepsy.

Hydrophobia see Cullen.

this disease commonly tho not always proceeds from the bite of mad animal. The common time of its appearance after the bite is supposed to be within 40 days but sometimes 3 Months. Cure instead to follow the same principles here as in Tetanus.

34. Question Must the disease be occasioned by a predatory cause, Does it not depend on debility? A Fact related by Fothergill induces me to believe that it does. Two persons were bitten by the same dog. One of whom died of the disease. It was remarked that the wound of the person who died was healed before he was seized with Hydrophobia, while that of the person who recovered remained open & discharged considerably. Here the wound must have been accompanied with a greater degree of inflammation & may not this inflammation have given such a tone to the system as to counteract the putrid powers of the poison. Another subject.

Dr Mathias says that a man & dog were bitten by a viper, which produced a swelling & the dog was cured. The wound ought to be dilated & sucked. Brandy cold bath, Exercise ought to be used in order to excite the greatest force possible. —

Order. Disease. The judgement injured with pyrexia & coma. The mind acts upon the body. The body upon the mind. Seconds of will, understanding, moral faculty, & conscience. —

Fatuity is born with us, or acquired by old age or accidental causes.
Certain consistance of the brain is necessary to right understanding. Those of children are soft. brains of madmen commonly too firm. Dr Stork employed Egyptian weed in Amentia with evident advantage
Cure. Tonics mercury, cold bath, & cold air bid fair to be of service in this disease.
Facts. Dr Priestly had a child who was an ideot at 4, or 5, years of age. it fell from a window & obtained the use of its reason. Its scull was not fractured but much contused. Dr Monro had a child in the same situation who recovered by being burnt in the feet.
The exercising the faculties is the best method of preserving them. for thus we find some possessed of them to a very advanced old age.
The memory is capable of being improved. To effect this some Physicians recommend the study of Physic & then Metaphysics
There is nothing more capable of improvement by exercise & pains than memory ——

36.C Melancholia — see Cullen.

This disease may arise Love, grief, Fear, Sedimentall
all the other passions of the mind. The most frequent
causes of this disease are Love, Grief & religion.
It is very frequent in Great Britain imputed to use of
an animal food malt liquours & dampair. It is said
likewise that their manner of education in the Temp.
& Colleges with their passion for seeing tragedies acted
upon the stage dispose much to this disease.

Remedies. Bleeding, blistering, Purges, regular
employment. Long journeys have sometimes proved
serviceable. —

Mania — see Cullen.

The worst species is that where the moral Faculty
is entirely suspended. This Disease is generally here
-ditary. The symptomatic species follows the use of
Hemlock, Opium, Drinking, Fevers and particularly
puerperal, which is to be considered as Synocha
Synochus, Typhus mitior or Gravior according to Symp.

... Dr. recommends pukes when the disease occurs in Summer or Autumn for it then generally appears with bilious symptoms. It is hereditary depending on a certain conformation of the brain, & occurs at different periods of life often requiring occasion causes to produce it. we ought to have particular regard to the pulse. If the Tonic prevails we must attempt the cure first by bleeding thus we diminish arterial tension & of course the nervous is also taken off. Purging. Blistering, warm bath. cold water applied to head in such a manner as to produce sedative effects. violent labour all of which have been found of use. Opium after evacuations is of the utmost consequence.

2. Atonic Species a different mode of practice is necessary here. The most powerfully exciting remedies generally do but little service. Blisters, stimulants vomiting, exercise, prove most beneficial —

38 Cam The mint says that Melancholy which the same as Atonic madness used to be cured by throwing the patient into water & keeping him there till almost drowned.

Cam Leiden tells us that madness is sometimes cured by Fever coming on. An inflammatory angina has cured madness as also an abscess in the thigh. Issues, Setons & encouraging abscesses & the more frequent application of Blisters 'tis likely would prove useful. In the Tonic species some severity may be necessary; but in the Atonic more gentle means are to be used.

Oneirodynia.

The imagination violent & troublesome in sleep. see Cullen.

Troublesome dreams, night mares, & walking in the sleep come under this head. In profound sleep the thinking powers of the soul are entirely suspended, in this situation therefore there is no dreaming. In those who walk, 'tis supposed that

that

that part of the brain which goes to the muscles
is not collapsed. Hence the propriety of recommending
Exercise which brings on sound sleep. Avoiding full
suppers. Opposed to suppers the want of the usual
stimulus will produce the same effect. An opiate may
sometimes be necessary. Tis supposed that all
those who go to bed well at night & are found
dead in the morning die of Incubus ——

Cachexiæ in Cullen.

(1) Marcores a wasting of the whole body—

Tabes — Leanness, Asthenia & Hectic Fever in Cullen —
Children are more subject to this disease than men.
Ulcers in the Kidneys, stomach &c are frequent causes of the
disease also scrophula & poison produce it. The poison
is often generated from the use of Copper vessels —
Cure Tonics, as bark, steel, cold Bath, Exercise &c

(2) Atrophia Leanness Asthenia without Hectic Fever
When this disease does exist (which is doubted) the Cure is
the same as above. Steel in Chronic diseases would be a
valuable medicine if used in large quantities. Administered in powder
to the qty of ℥i would prove very beneficial. —

(3) Intumescentiæ a troublesome swelling
on the whole or a great part of the body

(1) Adiposæ —

(1) Polysarcia a troublesome swelling of the body from fat
That under certain circumstances is a disease. Those
who become fat before their 40th year are not usually long
lived.

per this period when the venerio Pleshora takes place is
a sign of long life.
Causes of Fatness when it is a disease are Venous Intem-
perance, intense study, and a sedentary life, all these
all these produce it which proves it to be a disease.
It also follows the cessation of certain evacuations, and
the cessation of the stimulus of thinking.
Many remedies are tried none is to be depended upon
but exercise.

Flatulose

Pneumatose A tense elastic swelling of the body crackling
under the hand. see Cullen —
Whenever this disease occurs Exercise, Friction & cold bath
are the only remedies to be depended upon —

Tympanites A tense elastic swelling of the abdomen
costiveness, a wasting of the parts. see Cullen —
Cure. as above.

Physometra see Cullen.
A swelling of the womb from wind —
Cure. Tonics as Bark Steel &c —

(Anasarca An inelastic swelling of the whole or part of the body. in Cullen.

Cure. Purges of Jalap which are supposed to be the most effectual. Hydragogue purges, as Scammony & Gamboge Vomits in Anasarca & Ascites are very powerful remedies Vomits & purges together. A large quantity of Tart. Emet. taken thro' mistake, wrought a person in a dropsy very violently, both ways & cured him. Diuretics as Neutral & medicine salts, Nitre particularly ℥i dissolved in a pint & from a table spoon full to a wine glass taken three times a day. Diaphoretics. Scarifications. Mercury. Tonics, Aromatics, Blisters & astringents have been found of use. (Ascites Dr. Fothergill recommends to tap as soon as possible, before the Lymphatics have lost their tone.

Hydrothorax in Cullen. Symptoms in Dithor... Oedematous swellings in the legs usually accompany this disease

Cure.

Hydrorachitis of Cullen.

Spina bifida. Caustic is said to have cured it.

Hydrometra of Cullen.

A dropsy of the womb has been cured by mercury.
Blue dust in the quantity of ʒij to adult is said to have cured it.

Hydrocele of Cullen.

There are two methods of cure viz. Caustic &
Needle. Most people prefer the caustic. The
inflammation excited by its action cures the disease.

Solida.

Rachitis. of Cullen.

We know very little of this disease in this country
but what contributes to depress the terms of that
matter which is necessary to make them dense.
People think that putting children upon their feet
too soon disposes them to Rickets. 'Tis the reverse.
Remedies are Steel, Musk, Frictions, Cold Bath &
Generous Diet. A practitioner is to rub the Spine
& whole body with Castor oil.

Impetigines in Cullen.

Scrophula in Cullen.

Negroes seem to be more affected with this disease than white people. A predisposition to this disease is hereditary, as in the Gout; but it is not confined & may be acquired. Dr. White's chief dependance (who had experience of 1200 cases) was in Bark & small doses of Merc. C. Sub. 1/8 or 1/6 of G:n at a time. The tumors most frequently appear in the neck and throat. Caution is necessary in dispersing them as they may often fall upon the lungs and thereby bring on a consumption.

Syphilis in Cullen.

Dr. Hunter's Treatise on this disease is a valuable one. A fresh infection has been known to cure a Gleet. An injection of port wine will generally cure it. It may taken otherwise than by Coition.

[illegible] Lues. is of all others the most troublesome & distressing to which human nature is subject. It is called the Piddle Pox. If the disease does not appear within three months after coition on the usual place we may assure the patient there is no infection. It first appears in Ulcers, Chancres, Buboes, or sores upon the scrotum.

Cure, see Hunters Treatise. Opium is not a radical cure for this disorder. The Quick Silver pill is to be prefered to any other preparation of Mercury, as persons under the use of it are not liable to catch cold nor prevented from pursuing their business.

Scorbutus consult Lind or Home. Whether fluids are vitiated is certain Dr. Hulmes theory is that the solids are the seat of this disease. Scanty provisions are said to produce scurvy. 'Tis thought not to be a putrid disease, because the blood is Antiseptic Dr. Blane takes notice of a dimness of sight which takes place in this disease —

46. Cure this must consist in a removal of all the remote causes & cures the disease also. Lime, orange or Lemmon Juice are the best applications for the sores that occur. Poultices applied should be sprinkled with Lemmon juice &c.

Elephantiasis Lepra. Frambesia & Trichoma

see Cullen.

These diseases seldom occur at present. Trichoma tho formerly very common in Poland is at present little known. Frambesia or the yaws has been cured by Merc. C. Sub. & Gum Guiac given in large quantities

Icterus see Cullen.

Jaundice from Calculi is common is common. These calculi are composed of indurated bile, therefore improperly called calculi. They are inflammable. Boerhaave recommends drinking warm water in large quantities as a relaxant —

Cure. should begin by an Emetic; the bowels should be kept open; aloes are most commonly used & said to

depression & aversion to all kinds of motion occur. These should be removed by blisters. Where these remedies prove unsuccessful Calomel is serviceable. Mineral waters on account of their astringency are good.

Icterus Gravidarum comes on during pregnancy & is cured by delivery.

Icterus Infantum is cured by Rhubarb —

Locales. see Cullen —

Dysæsthesiæ see Cullen.

Gen. Caligo. see Cullen —

An instance of which occurs in Cataract. Merc. C. Sub. is said to be of service in incipient cataract. Couching is generally the only effectual means & it is commonly unsuccessful. Another instance is from opacity of the cornea a defect of aqueous humor &c & sometimes from gutta serena, which is a disease of the retina arising from compression. When this disease arises from compression bleeding & purging are to be used ——

in Stimulants, Dyspepsia Hemidesiphus see Cullen
see Authors —

Dysecoia Paracusis see Cullen

Sir J. Pringle says that Dysp[illegible] hearing is incurable only when it arises from indurated wax; which may be extracted by instruments. Warm water injected for [illegible] months is said to be the best solvent

Anosmia the smelling diminished or abolished. It arises from a defect of mucus or insensibility of the Olfactory Nerves. This disease has been cured by strong Errhines. - - -

Aghaustia the sense of taste diminished or abo[lished]. This arises from the same cause as the former and is cured by Stimulants. Taste is compared to Music & has its accordant & discordant Tones & [illegible] may so say. When two substances that accord, are combined they produce an agreeable sensation, as the concord in Music. When the discordant are conjoined, as Fish & Flesh it occasions a disagreeable & uneasy sensation, & is

nimpathy

accompany a disagreeable taste. Such as the discordant jarring sounds of music —

Anæsthesia the sense of Feeling abolished or diminished. On this & the former disease see authors.

Or 2. **Dysorexiæ** an Erroneous or deficient appetite.

Bulimia. An appetite for food in greater quantities than can be digested.— An excessive appetite is often a disease, 'Tis difficult to fix the cause of this disease till we are acquainted with the cause of hunger. Aliment serves two purposes 1st to nourish and supply waste 2d. to act as a stimulus ~~[illegible]~~ and give tone to the system.— Habit regulates this stimulus, & it is by habit this disease is acquired, so by inducing a contrary habit by degrees, this disease is cured.

Polydipsia. An unusual Appetite for drink. This disease is often artificial. tho' 'tis frequently symptomatic of other diseases. The Indians who

50. who live more agreeably to nature than any other people never drink before noon, & then but little. The warmest weather seldom occasions drinking before 2 o'clock. Drink is either stimulant or sedative in both cases it must be manifesty injurious. for the secondary operations of stimulants is always sedative. A handful of common salt has cured it.

Pica a desire for things not used for food — This disease occurs in Chlorosis, when an acid abounds & nature directs them to eat Chalk lime &c which destroys it. Children often shew a great desire for salt meat, which is thought to be strange; but as in them an acid abounds the salt meat is one of the best medicines: as by giving tone to the stomach it avoids acidity.

Satyriasis & Nymphomania in Cullen These occur from Physical causes. as Pride, fulness of diet &c. The best antidote is business & labour. Camphor has been said to be an antidote. The Monks take it to subdue their appetites. It acts as a Sedative.

Nostalgia. Home sickness or Cullen.

This disease is either simple or complicated with other diseases. It was first remarked among the Swiss. New England men are sometimes also very much afflicted with home sickness. People who arrive here from Scotland are apt to be afflicted with Intermittents, Yet is amazing with what force this disease blends itself with it, so much as to make them justly miserable if they cannot return which is the best remedy —

Dyspepsia. Defficients.

Anorexia. a deficient desirable for Food. This is a symptom of Dyspepsia.

Adipsia a superficial desirable for Drink. Yet is most frequently a symptom of a disease ---

Anaphrodisia is want of Lust or Impotence of Semen —

Cure. Cold Bath and Electricity.

Aphonia. a total suppression of voice without Coma or Syncope.– 'Tis sometimes occasioned by a tumor in the Trachea. Salivation has effected a complete cure

Mutitas an impotence in articulating words. Where this is congenial it is not incurable. Many persons born dumb have been taught to speak by Mr. Braywood he concluded that a child must be necessarily ~~born~~ dumb who was born deaf, & hence concluded that the organs of speech might not be injured.– –

Paraphonia a depraved sound of the voice. The voice changes at 14 years of age. Hoarseness generally arises from a defect of mucus in the Trachea, in this demulcents as Liquorice &c. are proper. When it arises from ulceration. Cullen will relieve

Psellismus A defect in the articulation of words. Cullen.
Stuttering arises from a convulsive motion of the tongue. Passion, fright, haste &c produce this where it is not habitual. When it is singing will relieve it or speaking very deliberately.

Strabismus. The optic axis of the eye not converging.
Squinting arises originally from weakness sometimes from disease & frequently from carelessness or accident.
Cure. A pair of spectacles of paste board worn for a length of time has been found to cure it --

Contractura in Cullen.
Warm bath relieves this disease when it arises from the enlargement of the capsular ligament. Deep Eschars made by caustic proportioned to the largeness of the joint, & kept running will be of service.

Dysphagia in Cullen —

Cl. 4th. Locales

Profusio. A Flux of blood.

511 Uterine from Haemorrhage. Many persons from a slight cut or the drawing of a tooth are in the utmost danger of their lives. Sometimes actually die. Nothing but compression till the artery has united will cure this disease. A discharge of this kind from the Nipple has been cured by applying a rag wet with Port wine to the part affected.

Ephidrosis. A preternatural Evacuation of Sweat

When this disease is universal the cure is to be attempted by a Flannel shirt, Bark & Elixir of Vitriol. When it is partial washing the part with port wine.

Epiphora. A Flux of Lachrymal humors

Fistula Lachrymalis has been cured by Mercurial frictions & Laxatives —

Ptyalismus. A Flux of Saliva —

Is cured by exciting evacuations elsewhere. That species occasioned by Mercury is certainly cured by purging. Sulphur is esteemed the most proper purge. Sucking Limes or Lemmons when the mouth is not sore removes the disease.

Enuresis an involuntary flux of urine from the bladder & without pain.

That species arising from want of tone in the sphincter vesico is best relieved by a blister applied to the perineum. This gives tone to the perineum which is communicated to the bladder & thus cures the disease. Balsams Canthar. &c are frequently given also. That arising in the last months of pregnancy is remedied by Bleeding Purging taking off as much as possible the compression & irrita-tion. After the Purge an Anodyne may be given. Bark & Tonics are of service ——

Gonorrhea in Cullen.

This disease always appears after 12 days & from 3. to 9. is the usual time

Gonorrhea pura sometimes occurs from injuries bruise, strain, &c ——

Impura may be communicated otherwise than by having connection with impure women.

[...] Cure of this species has been attempted. 1st by means of caustic Alkali which may be safe & powerful when the first symptoms of the disease appear; it must be used however as soon as the infection is received; or not at all. after the symptoms have preceded, it will then be injurious. It must be used by way of injection very much diluted when it will be as efficacious as Bark in Intermittents.

(2d. By mercurial injections, of which I have always found the following one the best.

℞. Ungt. e Merc ℥i. Mucilag. Gum Arab. ℥ij.
Vitell. ovi No. 1. Aq. font. ℥ iij. m. —

For this injection, the ointment should be made without Turpentine & used fresh. Calomel or Mer. C. sub. dissolved in water are also used. — —

(3d. Lenient Purges are sometimes of consequence they are only useful in keeping down inflammation. When the discharge is thick & whitish, & the inflam=mation gone off you may have recourse to astring[ents]

astringents & tonics. as Balsam Copaib. & Pil. Chalyb. Injections of Sac. Satur. are sometimes used, but it is apt to induce an inflammation of the neck of the bladder. Where ulceration is suspected in the urethra calomel may be injected.

Gleet is in the penis, what a Coryza is in the nose viz. an increased secretion of mucus. When it subsists a long time, ulcers occur which are troublesome & are to be cured by mercury. Where it arises from Relaxation. Astringent injections are to be used. The most frequent one is sound claret, or equal parts of Port wine & water. This is more efficacious and also safer than any other. When the Gleet continues six months there is no danger of infection —

Diabetes Insipidum is a very troublesome and obstinate disease. When bark, steel, wine, and cold bath have failed, it may be perfectly cured by salivation. Lying upon the back is unfriendly to this disease

 Ord. Epischeses a suppression of the evacuations

Obstipatio see Cullen.

This is a common symptom in Hypochondriasis and Dyspepsia. Sedentary people, hence more women than men are troubled with it. from not being able to obey the calls of nature. The observance of a stated time, & regularly repairing to the usual place at that time would prevent the ill effects attending this disease. Vegetables are more aperient than animal food. Butternut pills is used in this case: but dangerous on account of its narcotic properties. Apoplexy attends the repeated use of it— Rhubarb root chewed in the morning prevents it. Clysters are injurious as they relax the intestines

Ischuria, a total suppression of urine.

Owing to worms sometimes in the bladder, ureters, & kidneys they have been discharged without pain. That which arises from Gravel, Warts, Caruncles &c is

is of all the most difficult to cure. Viscidair
is said to be the vinculum which binds the particles
of stone together. Alkali is known to be as others.
℞ i. Alk. salt dissolved in Peppermint water or Chamomile
Tea ℔ ij. a tea cup full taken three a day is an
excellent remedy —
Uva Ursi acts in this case as a tonic & bitter
the bark succeeds as well — A biscuit or crust of bread
taken every morning has proved serviceable. In the
urine there is always a septic tendency. after
stagnation it is supposed to possess dissolving quali
ties not present in it before.

Dysuria a most painful & troublesome or impeded
emission of urine.
It arises from Gonorrhoea, or Cantharides taken or
applied —
Cure. demulcent drinks as Flax seed, bran or
barley tea, with Gu. Arab. it arises from sperm
compression. Warm B. — Opium & laxatives are
to be depended upon. Catarrhus Vesicae is.

It is easily known from the venereal affection 1st by the cause not preceding, 2d being not accompanied with inflammation 3d The matter being remarkably viscid, never green or tinged with blood.

Cure, Tonics, Astringents, Injections, Balsams &c

This disease is sometimes a symptom of Gout.

Dyspermatismus

see Cullen —

Amenorrhoea

see Cullen

This disease arises either from emansion or suppression. When there is Fever it must be treated as the primary disease. Bloodletting is seldom necessary.

Emmenagogues Probably no medicine acts directly on the uterus. Many act indirectly by strengthening the whole system. Steel is preferred except where affections of the Lungs occur in doses of from ℈i, to ʒß. Mercury is a under a general stimulant. — The Chalybeate powder is to be

be given in powder, & the salt of steel in pills in three large doses H.12, of them will generally be sufficient. Tonics in the interval & Anodynes during the discharge will be useful.

In all chronic diseases of Females, we should suspect an obstruction of the menses.

About the time that menstruation ceases Menorrhagia, Stillicidium, Flatulency, Pneumonic Complaints, Cancers of the womb or breast, Piles &c, sometimes occur.

then occasional bleeding & keeping the bowels gently open with Tartar & Sulphur will be necessary.

Ord. Tumores.

An increased magnitude of a part without Inflammation

Aneurisma Varix Ecchymoma. a bruise.

In Bleeding. Blood will often insinuate itself between the skin & muscles. It appears black sometimes alarming nothing is necessary to be done the blood is absorbed in a few days.

62. Schirrus see Cullen.

It should by all means be extirpated as it generally tends to a cancer. The Knife is the best mode. Mercurial ointment will sometimes discuss these tumors. 'Tis better remove it before suppuration. —

Cancer see Cullen. see Cam Question

Cancer in the breast or neck is attended with most danger. In ulcerated cancers caustic is the best remedy. There are various caustics as Ol. Vit. Caus. Lun. Lap. Infer. Arsen. Alb. is thought to be preferable to any. The strength of the application can be better regulated. It acts by inducing of inflammation which throws off the morbid part. — About 15 or 20. grs to ℥ 1. aq. font. & a piece of Linen dipt in this and applied to the part once a day is found to be the most successful manner.

Bubo. a suppurating tumor of a conglobate gland Caustic is the best manner of opening it.

Lupia a moveable soft swelling under the skin without pain

As soon as this disease appears a caustic should be immediately applied to the part, which seldom fails of effecting a cure.

Hydatis vesicles of the skin filled with a watery humor
This may be caused by the long continued use of mild cathartics; as Sulphur Glaubers Salts &c. The most certain remedy is Calomel & wheat flour ¼ part of calomel & ¾ flour may be begun with & gradually increased till we arrive at equal parts. N.B. A Quack remedy.

Hydarthrus in Cullen.

White swelling chiefly affects the knee. A perpetual blister or caustic plaster continued for 3 months is seldom known to fail
It is a distressing application...

Exostosis. A hard tumor adhering to the bone. Consult Bell.

Ord Ectopiae in Cullen.

Treatment. Bell Vols 2 -

Ord. Dialyses in Cullen

In all cases where joints are injured by gun shot wounds amputate. In endeavouring to save the limb the patient is lost. The bones become carious & at length an Hectic Fever closes the scene.

In such cases there is generally a great deal of Contusion & tendency to gangrene particularly in Summer which renders the taking of Bark indispensably necessary —

these appear chiefly in the legs. There is an intimate connection between sore legs and intemperance.

Cure by diet avoiding the use of Spirits by Bark by destroying fungous flesh by Escharotics, by binding the part affected with a lace stocking. Various Cerates the unguentum Smith's Ungt, Liniments, Mercury acts as an universal stimulant by revulsion. The carrot poultice, wort liquor all have been used with evident advantage.

Herpes & Tinea in Cullen.

In the first stage apply Tar ointment or that of Yellow Basil. If these fail sprinkle the powder of Calom. & Flour on twice a day. Should these fail a solution of white Arsenic is said to be an important remedy

Vena. Fractura Caries in Cullen.

Itch &c. in authors

Contents.

Hysteria
Hydrophobia
Impetus, Affections
Melancholia
Mania

Convulsions, Spasms, &c.
Sight, Hearing and Walking in the Sleep
Clarcens, Stiffness
Intumescentia, a tumefactive Swelling
Polysarcia, from Fat

Natulose

Emphysematosa, a tense elastic swelling of the Body
Tympanites, a tense elastic swelling of the Abdomen
Physconcha, a swelling of the groin from Wind

Aquose

Anasarca, an elastic swelling of the whole external Skin
Hydrometra, a Dropsy of the Womb
Hydrocele
Rachitis, or Scrophula
Asphilis

Fluids

Sickness

Or. 8 Epischeses.

1 Suppression of the Evacuations

Or Tumores.

Supra Hydatis, Hydarithros 63.

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